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PAPER TRADE JOURNAL

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Vol. LXXXV, No. 7 AUGUST 18, 1927 Per annum $4.00 Per Copy 10 Cents

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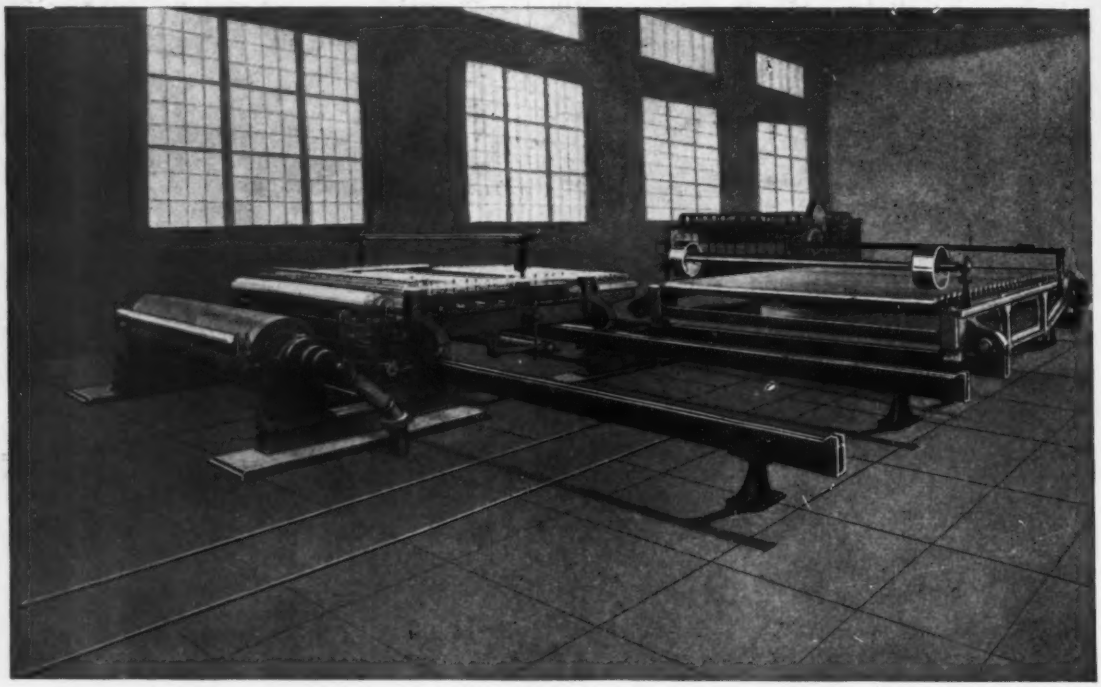

Wire Can Be Pitched Without Affecting Inlet Adjustments

Four power operated jacks are installed on each side of the Keystone Fourdrinier, which lower the Table Roll and Suction Box Sections independently, in two separate units, onto the rails when making wire changes. These jacks are also used for pitching the wire. The Breast Roll is not moved, but instead the two center jacks on each side are raised or lowered, thereby giving the desired pitch to the wire without disturbing the inlet adjustment.

This is only one of the exclusive advantages obtainable in the Keystone Fourdrinier. Write us for complete information, list of users and ask us to explain the advantages of removing in two sections and how the wire can be changed without affecting inlet adjustments,—no obligation. When you need a Fourdrinier machine to make News, Kraft, Book, Tissue or Specialties, let us bid on your requirements.

Our Products Meet Our Promises

KEYSTONE Fourdrinier

Downingtown Mfg. Co.-East Downingtown, Pa.

Entered as second class matter August 13, 1925, at the Post Office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. ESTABLISHED 1872 FIFTY-SIXTH YEAR Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., E. Stroudsburg, Pa.
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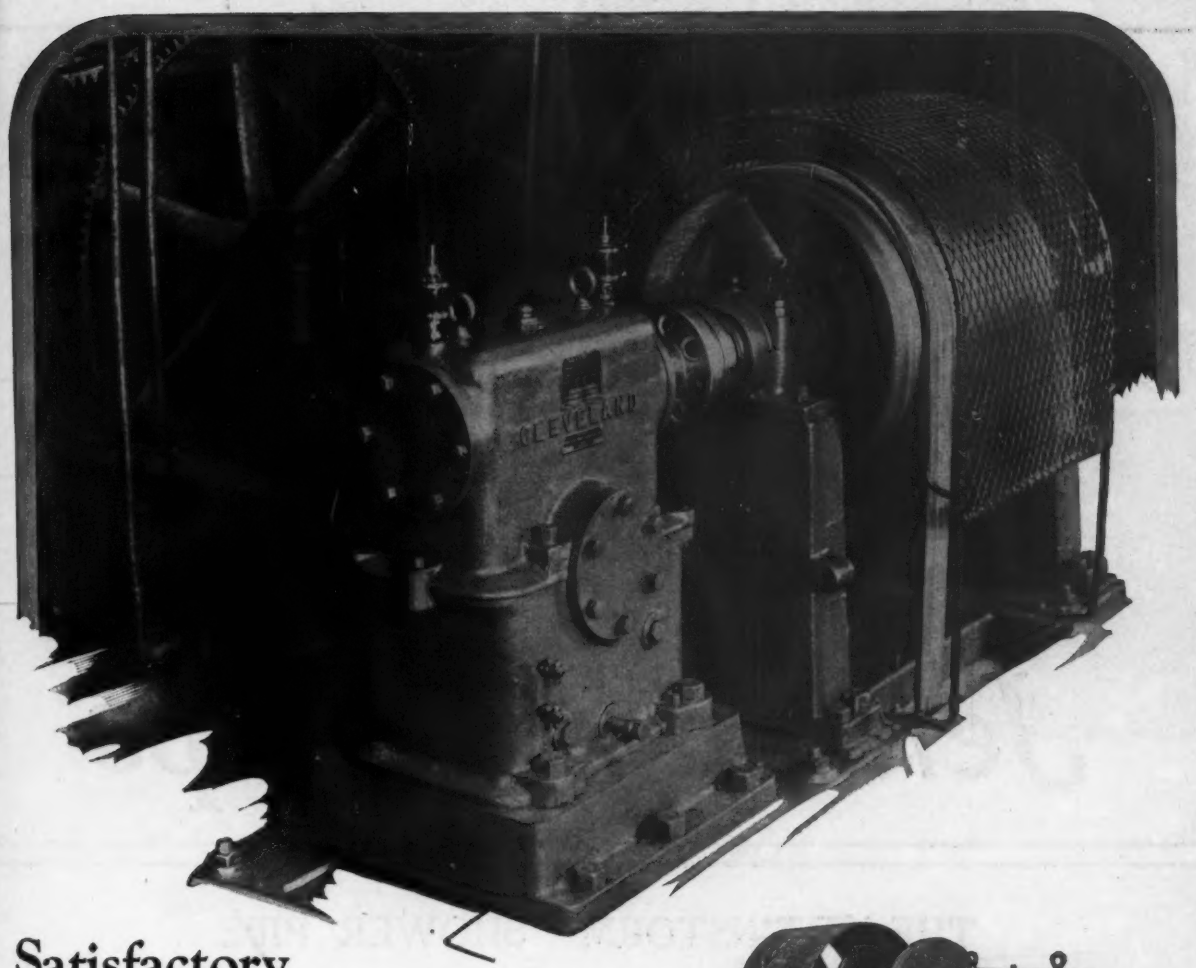


Satisfactory Power Transmission

Paper mill engineers need no longer be satisfied with ordinary service on drives for paper machinery. The Cleveland worm gear reduction unit meets all the requirements of paper and pulp mill operation, such as

1—Continuous operation with no production delays.
2—Low maintenance cost.
3—No repairs during years of service.
4—Uniform flow of power resulting in steady running without jerks or shocks.

Cleveland worm gears are running every kind of paper and pulp machinery in hundreds of plants throughout the United States and Canada. Solve your power transmission problems the Cleveland way.

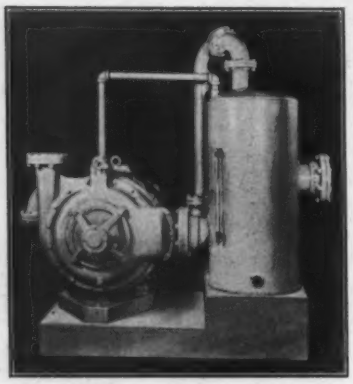
The very successful paper machine section drive illustrated above consists of a standard Cleveland worm gear unit mounted on a substantial cast-iron base with a ball-bearing countershaft, pulley and magnetic clutch. Ask your machine builder about the Cleveland drive.

- CANADIAN AGENTS -
Peacock Bros., Ltd., 1605 Delorimier Ave., Montreal, P. Q.

CLEVELAND WORM & GEAR COMPANY

3291 EAST 80th STREET **CLEVELAND, OHIO**

Simplifies air and water removal from flat boxes



The new Jennings Flat Box Pump, for removing water and air from flat boxes.

It is no longer necessary to use two separate pumps for this purpose. The new Jennings Flat Box Pump removes both the air and the water. The air is discharged without back pressure to the atmosphere; the water is either returned to the machine well, or forced under pressure into the beaters or stock chest.

The advantage of using the Jennings Pump instead of two distinct and separate pumps is obvious. Greater compactness is assured, as well as a material saving in floor space. The piping arrangement is simplified.

And since the air, which represents the larger part of the total volume of fluid handled, is discharged without back pressure, there is a big saving in the power required to operate the pump with a corresponding saving in current.

Write today for bulletins describing this new Jennings Pump.

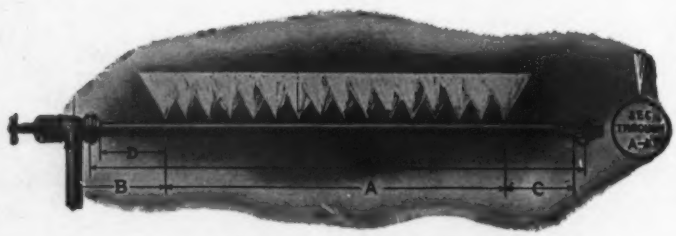
NASH ENGINEERING COMPANY
164 Wilson Road S. Norwalk, Conn.

New England Representative
Mr. G. H. Gleason, Nottingham Bldg., Copley Square, Boston, Mass.

Western Representative
Mr. T. H. Savery, Jr., 80 E. Jackson Blvd., Chicago, Illinois.

Jennings Pumps

THE "RAINSTORM" SHOWER PIPE



MANUFACTURED BY

THE SMITH & WINCHESTER MFG. CO.

SOUTH WINDHAM, CONN.

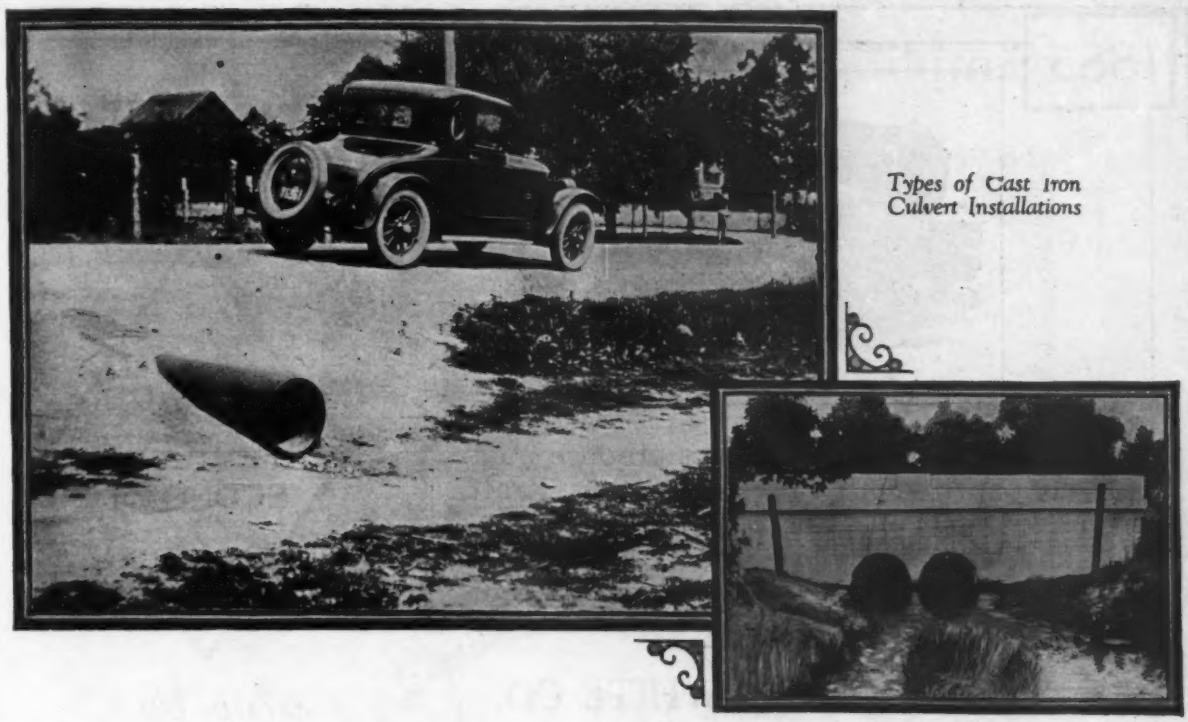
ESTABLISHED 1828

A Complete Line of Paper Bag Making Machinery

BUILDERS OF DEPENDABLE MACHINERY FOR THE PAPER MILL

The Undercut Trimmer

Die Cutting Presses



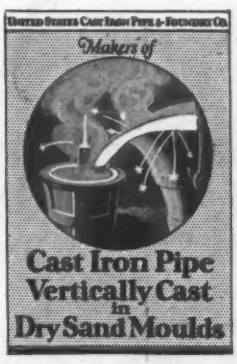
Types of Cast Iron Culvert Installations

Use deLavaud Centrifugally Cast Culverts for Permanence . . . and Economy

THE great compressive strength of deLavaud cast iron culverts is an important point where a heavy fill exists.

Their light weight makes them easy to handle and install—the smooth interior surface produced by the deLavaud centrifugal method of casting gives them an increased run-off capacity.

Many construction engineers specify cast iron culverts on account of their high resistance to corrosion. Their strength results in permanence and the elimination of maintenance costs.



Write for full details

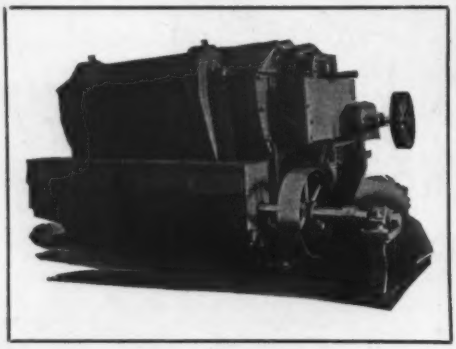
United States Cast Iron Pipe and Foundry Company

General Offices:
Burlington, New Jersey

SALES OFFICES

Philadelphia: 1421 Chestnut St
Chicago: 122 So. Michigan Blvd.
Birmingham: 1st Ave. & 20th St.
Buffalo: 957 East Ferry Street
Cleveland: 1150 East 26th Street
New York: 71 Broadway
San Francisco: 3rd & Market Sts.
Pittsburgh: 6th & Smithfield Sts.
Dallas: Akard & Commerce Sts.
Kansas City: 13th & Locust Sts.
Minneapolis: 6th St. & Hennepin Ave.

1885



"MOORE & WHITE" ROTARY SCREEN

"Moore & White" Screens produce quality paper whether used on Tissues, Kraft, Roofing Manilas or Book Paper. Lumps and slime spots are eliminated. Breaks on paper are thus prevented and continuous operation is assured.

TONNAGE
CLEANLINESS
ECONOMY

THE MOORE & WHITE CO.
PHILADELPHIA, U. S. A.

CATALOG ON REQUEST

1927

SUPERIOR

ROSIN PRODUCTS

ROSIN SIZE

WAX AND SPECIAL WATERPROOFINGS

FOAM KILLERS

FELT SOAPS

SOAP POWDER

VEGETABLE TALLOW

SUPERIOR CHEMICALS

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CASEIN SOLVENTS

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CHEMICALS AND SERVICE

Twenty-two SUPERIOR Plants

The Most Extensive Organization of Its Kind in the World

Producing, Distributing and Servicing Chemical Products for the Pulp, Paper and Coating Trades

"There Is a SUPERIOR Plant Near You"

Paper Makers Chemical Co.—Easton, Pa., Holyoke, Mass.
Western Paper Makers Chemical Co.—Kalamazoo, Mich., Pensacola, Fla., Jacksonville, Fla., Savannah, Ga., Comstock, Mich.
C. K. Williams & Company, Easton, Pa.
Georgia-Louisiana Company, East Point, Ga., Merrero, La.
Southern Pine Products Company, Fargo, Ga., Tarver, Ga.
Empire Size & Chemical Co., Albany, N, Y.
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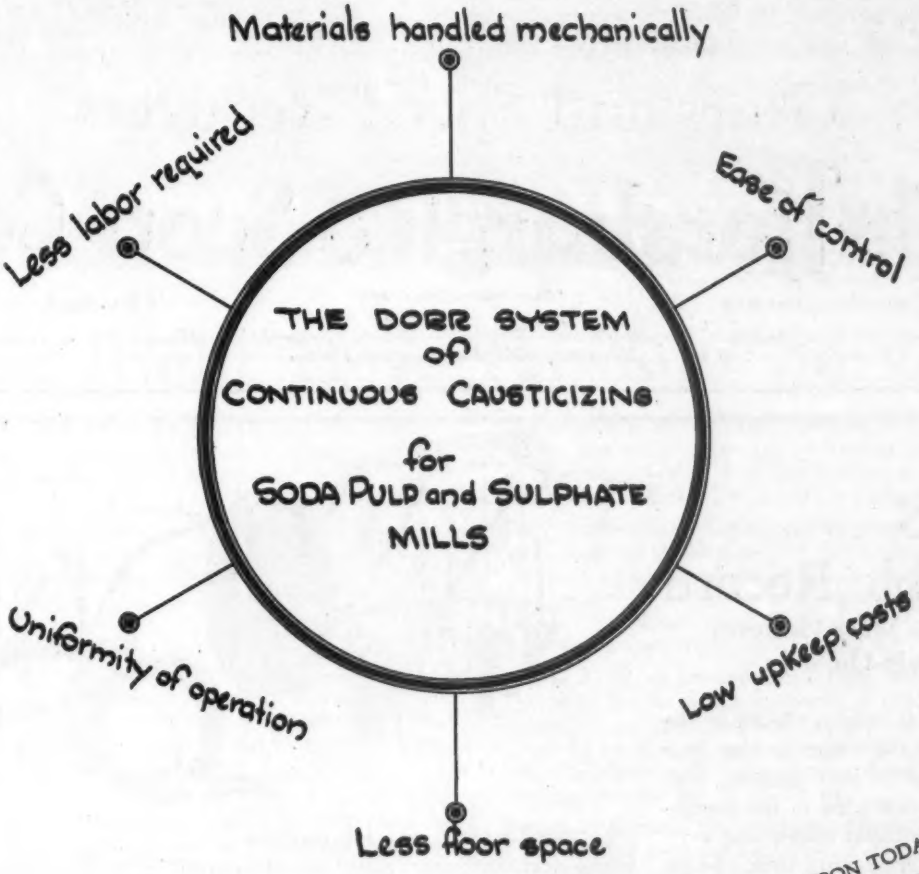
Superior Sizing Company, Lockport, N. Y.
Paper Makers Importing Co., Easton, Pa., St. Austell, Cornwall, Eng.
Vera Chemical Co. of Canada, Ltd., Freeman, Ontario.
Vera Chemical Corporation, Stoneham, Mass.
Vera Chemical Company, North Milwaukee, Wis.
John Regnier & Son Company, Boston, Mass.
George P. Mepham Company, East St. Louis, Mo.
Pochins & Paper Makers Chemicals, Ltd., Erith, Kent and Manchester, Eng.

6 Points of Interest

to Soda Pulp and Kraft Mill Superintendents


Materials handled mechanically
Less labor required
Ease of control
THE DORR SYSTEM of CONTINUOUS CAUSTICIZING for SODA PULP and SULPHATE MILLS
Uniformity of operation
Low upKeep costs
Less floor space

MAIL THE COUPON TODAY

I am interested in Continuous Causticizing for . . Soda Pulp Mill / Sulphate Mill

Name_____

Address_____

City_____

State or Province_____

THE DORR COMPANY

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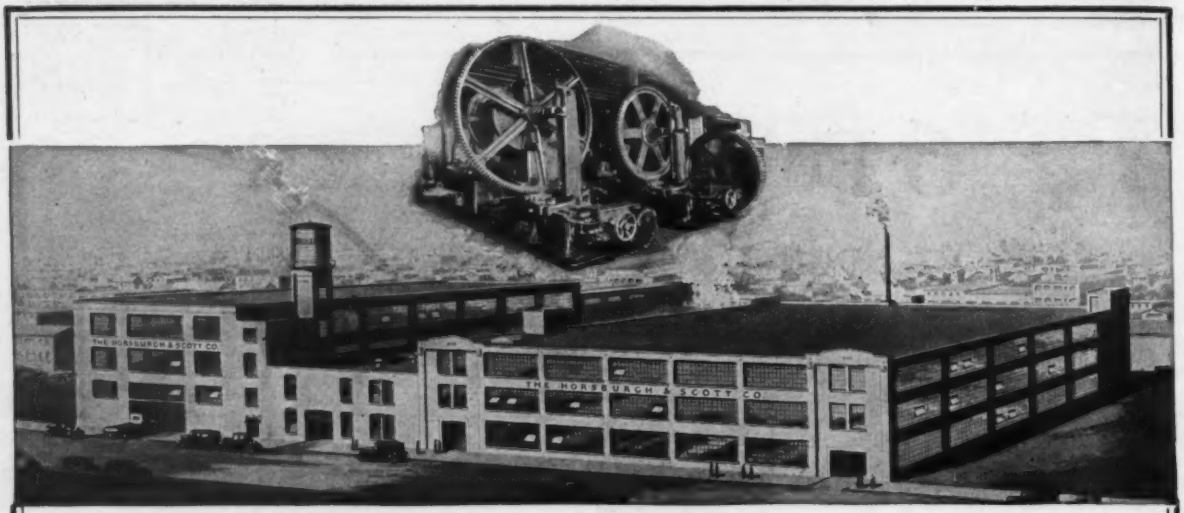
ATLANTA 1503 Candler Bldg.
JOPLIN 319 Joplin National Bank Bldg
SOC. DORR et CIE. 126 Rue de Provence Paris 8

INVESTIGATION TESTS DESIGN EQUIPMENT



Gears and Speed Reducers

The Horsburgh & Scott Co.

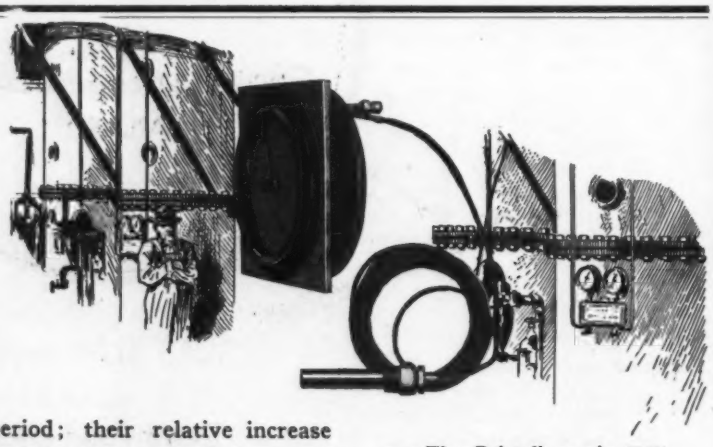
5114 Hamilton Avenue *"Gear makers since '89"* Cleveland, U. S. A.

Gears for Every Industrial Purpose—Worm—Bevel—Herringbone—Spur—Spiral—Hardened Heat Treated Gears—Non-Metallic Gears and Pinions

This

Double Record

Insures More Uniform Pulp Quality



The quality of pulp produced in the sulphite process depends on how well temperature and pressure conditions are controlled in the digesters. More uniform cooks, and very often a shorter cooking time, can be secured by placing the guidance of Recording Thermometers before the operator.

Especially applicable is the Bristol's Two-Pen Recorder, which provides a record of both temperature and pressure ON THE SAME CHART. Having both factors shown continuously in direct comparison enables the operator to keep them under close observance for the entire cooking period; their relative increase being accurately controlled according to the most desirable schedule.

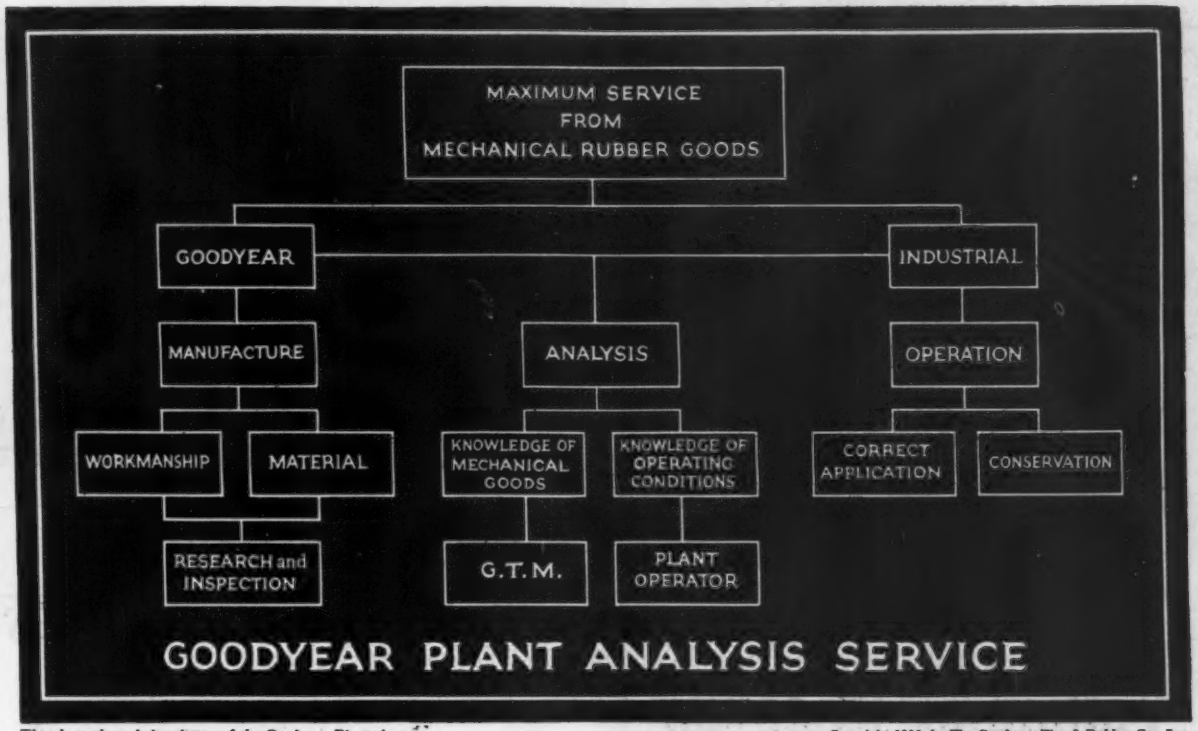
A further use is the valuable data made available to the superintendent or chemist concerning the reaction of different woods to given cooking schedules.

The Bristol's equipment used is simple, and rugged, requiring little attention through years of service. Let Bristol Sales Engineers analyze your needs and aid in selecting the right equipment.

The Bristol Company *Waterbury, Connecticut*

FOR 38 YEARS Ask Any Technical Engineer MAKERS OF

BRISTOL'S RECORDING INSTRUMENTS



This charts the orderly relation of the Goodyear Plant Analysis Plan for maximum service from mechanical rubber goods

Copyright 1926, by The Goodyear Tire & Rubber Co., Inc.

The Right Hose for Your Service

Nearly every use to which hose is put in modern industry is a use that demands a particular kind of hose, with qualities all its own.

As you very well know, quite different requirements are exacted from the hose that carries acid, for example, and the hose that carries compressed air. High pressures steadily maintained, and high pressures of pulsating character, call for different body construction in the hose. Washout hose in the paper industry must have a different tube from the tube that is wholly satisfactory for air hose. External punishment, oil in the line, the necessity for extreme flexibility—these are special requirements that must be met by special design.

The utility of a hose, therefore, depends primarily on its maker's knowledge of the working conditions which it is called on to satisfy, and the care with which you use it. The manufacturer of Goodyear Hose is concerned with both these factors, of correct construction for the duty required, and of proper use of the finished product.

The Goodyear Plant Analysis method is the means by which Goodyear helps users of hose to determine exactly what hose construction will serve them most efficiently and economically. As in the case of belting and other mechanical rubber goods, the application of this analysis plan is entrusted to the G. T. M.—Goodyear Technical Man.

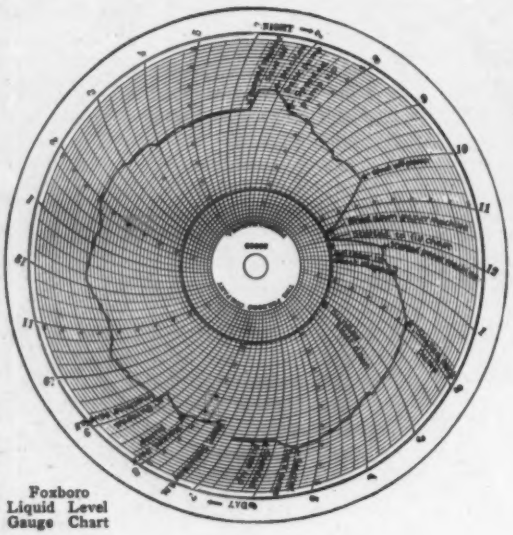
The experience of Goodyear in years of careful development of Plant Analysis methods convinces us that proper analysis is exactly as important and valuable in the case of hose as in that of belts. "Just hose" is never so good nor so economical as the "right hose for the job."

The G. T. M. is an expert on hose. He is familiar with the hose requirements of many industries. In co-operation with your plant officials, he will be glad to analyze your hose problems, and help you work out a system of conservation to prolong the life of your hose.

You may depend on Goodyear Hose thus specified to your service, to give you every advantage of efficient and economical operation over a long life. For detailed information about the G. T. M., the Plant Analysis method, and the specialized hose that Goodyear makes for every line of industry, write to Goodyear, Akron, Ohio, or Los Angeles, California.

Goodyear Means Good Wear

GOODYEAR



Foxboro
Liquid Level
Gauge Chart

Valuable Records

The Foxboro Liquid Level Gauge gives you clean, legible, permanently accurate records of the volume of stock in the stuff chests. In no other way can you get the information which is recorded on the daily Foxboro Charts. They show when the beater is dropped, when to dump the save-all. They show when the paper machine started and stopped. They give a complete check on the volume of stock consumed.

. . . And this is only ONE of the many uses to which the Foxboro Liquid Level Gauge is put by representative paper companies everywhere.

THE FOXBORO CO., *Inc.*

Neponset Avenue, Foxboro, Mass., U. S. A.

New York Chicago Philadelphia Boston Pittsburgh
Cleveland Detroit Tulsa Rochester Atlanta
San Francisco Los Angeles Portland, Ore.

Peacock Brothers, Limited, 1605 Delorimier
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Sole British Representatives: Walker-Crosweller & Co.,
58 Queen Elizabeth Street, London, S. E.

FOXBORO

REG. U. S. PAT. OFF.

THE COMPASS OF INDUSTRY

Consider these pipe qualities

TAYLOR Spiral Riveted Pipe is light and strong. It can be easily transported and installed. It saves handling and erection charges.

Taylor Spiral Riveted Pipe is made of copper-bearing steel on which is applied, inside and out, by complete immersion, a protective galvanizing or asphalting. This pipe will give years of service without deterioration from rust or corrosion.

It can be supplied complete with bends and fittings. The fittings can be made in practically any shape or form to take the difficulty out of the most intricate paper mill pipe layouts.

The flanges on this pipe are Taylor Forged, Steel Flanges. They are practically unbreakable.

Pipe sizes 3 to 42 inches. Lengths as required. Every length hydraulically tested.

Pipe and flange catalogs on request.

American Spiral Pipe Works

Main Office and Works:

Chicago, Illinois, P. O. Box 485

New York Office: 50 Church Street

TAYLOR *Spiral Riveted* PIPE

PTJ8-18-Gray

STUFF CHESTS
that "deliver the stuff"

Whatever your mill requirements may be, Noble & Wood can furnish a stuff chest to meet your needs.

Vertical chests, horizontal chests, half-round chests, in any desired size—sturdily built to give dependable service for an amazing number of years. Tanks of Gulf Cypress, Redwood, Hard Pine or Cement. All lumber carefully selected and dressed on all sides.

Drives for every plant condition, spur, bevel and compound gear, and with speed reducers for direct motor connection.

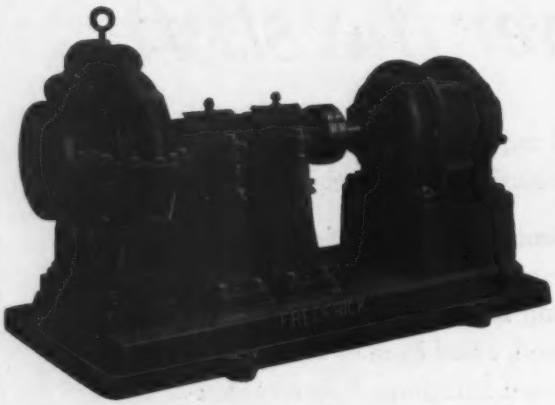
Agitators very heavily built with a thought to the abuse they must withstand. Trouble-proof bearings that minimize stress and economize power.

Stuff chests receive scant attention in the average paper mill. A Noble & Wood Stuff Chest needs still less than is ordinarily expected. Hardy, staunch, built for real service and wear, it "delivers the stuff".

Our engineers will gladly help you select the type best fitted to your requirements

NOBLE & WOOD
MACHINE COMPANY
Hoosick Falls New York

FREDERICK CENTRIFUGAL PUMPS



Insist on Split Sleeve Bearings in Your Pumps

Split sleeve bearings are standard construction in all Frederick Pumps above 1½" discharge. The reasons for using this type of bearings are:

1. They are easily replaced. Simply remove the bearing cap and roll the bearing out. The pump doesn't have to be torn down.
2. They give the shaft wide supporting surfaces. The shaft does not rest virtually on knife-edges at each end.
3. They are covered by an oil film that provides a cushion for suddenly applied loads and shocks.
4. They give long wear, without requiring attention. A slight impairment will not appreciably affect the operation of the pump.
5. They are easy to repair. A babbitt bearing can be made in the field by an ordinary mechanic.

When roller-bearings or ball-bearings are specified for some special reason, they are furnished in Frederick Pumps at no additional cost.

The Frederick Iron & Steel Company
FREDERICK MARYLAND

In Canada:
Dominion Engineering Works, Ltd., Lachine, Que.

ORR ENDLESS FELTS

The Orr felts are recognized as most important factors in the production of more and better paper at a lower cost per ton.

These felts are manufactured from wools carefully selected, covering a large experience in manufacturing.

Needless to say they insure satisfactory service.

It is possible to weave these felts Endless up to eighty-six feet.

We request a trial, which will prove to your advantage.

Samples of grades required sent upon request.

The ORR FELT & BLANKET COMPANY

Piqua Ohio

"ask us"
THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-making Machinery
[NEWS-PRINT BOOK PAPER KRAFT BOARD]
Wilmington, Delaware, U.S.A.
THE SIGN OF TRADE MARK SUPERIOR QUALITY

Illustrating the Puseyjones Syphon-type Steam Joint

Copyrighted 1927 by The Pusey and Jones Corporation, Wilmington, Delaware, U. S. A.

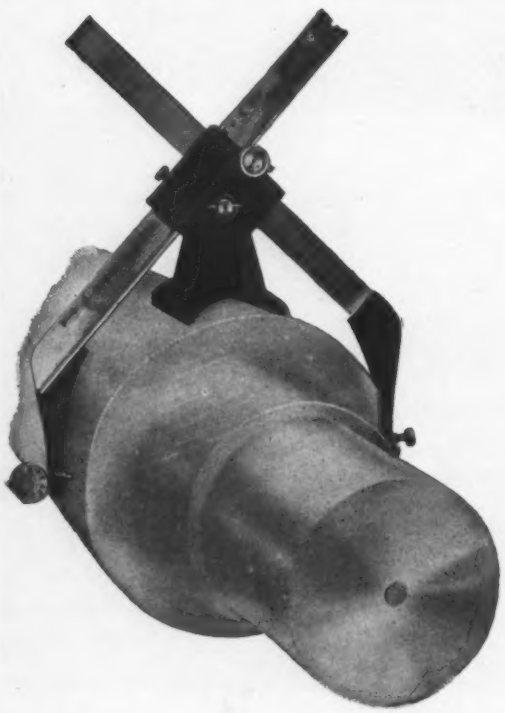
QUALITY PRODUCTS REQUIRE QUALITY ALKALIES

Whether alkalies form a minor or major part in your manufacturing processes, you will find it advantageous to specify Diamond Alkalies. Quality goes through and through from raw materials to finished product.

Their purity and uniformity are in great measure a guarantee of uniform results. Warehouse stocks strategically located assure an ample supply and emergency deliveries as your requirements demand.

There are Diamond Warehouse Stocks in your Vicinity

DIAMOND ALKALI COMPANY · PITTSBURGH, PA.



LOBDELL

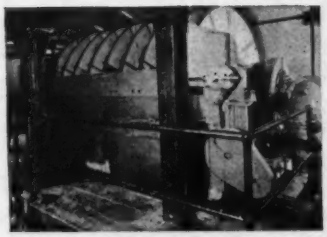
IMPROVED MICROMETER ROLL CALIPER

An indispensable instrument to the mill equipped to do its own regrinding and equally useful in every mill in keeping an accurate check on the condition of the calender and press rolls.

LIGHT WEIGHT
EASILY ADJUSTED
EXTREMELY ACCURATE

LOBDELL CAR WHEEL COMPANY
Established 1836
WILMINGTON, DELAWARE.

This Man's Conclusions Matched by Many Others



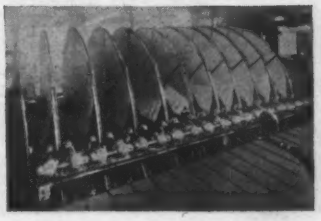
American Filters at Consolidated Water Power & Paper Mill.

Other American Equipped Mills.

Algonquin Paper Company
Combined Locks Paper Co.
Finch-Pruyn Paper Company

NOT long ago, an executive of a certain up-to-date news mill in Michigan courteously sent us a copy of a letter he had written, with permission to use part of it.

In this letter he refers to two large American Filters being used as ground wood deckers or thickeners:



American Filter at St. Maurice Valley Corporation

Other American Equipped Mills

Miami Paper Company
New Foundland Power & Paper
St. Anne Paper Company

"Previous to the installation, the fiber bearing effluent, or white water waste, which was going from the mill amounted to about 3,000,000 gallons per day and contained in varying amounts from 8 to 9 pounds of fiber and white water waste per 1,000 gallons. After the filters were installed and also sources of white water waste prevented, we found that the effluent from the American Continuous Filter was about ¾ of a pound per 1,000 gallons. It did not exceed ¾ of a pound. In quite a number of cases, it varied from ⅝ to ¾ of a pound.

"Our conclusion on the whole matter is that we have one of the best pieces of apparatus for reduction of white water waste that there is in existence, and our conclusions in this regard seem to be agreed upon by many others in the paper industry who have seen our apparatus here and who have immediately purchased similar apparatus for their own mills."

American Filter at Powell River

Other American Equipped Mills

Minn. & Ontario Paper Co.
Mead Pulp & Paper Co.
Bryant Paper Company

Just as he has written, many other mills are also equipped with American Filters—and, like this mill, benefitted by them.

American Filter At Abitibi

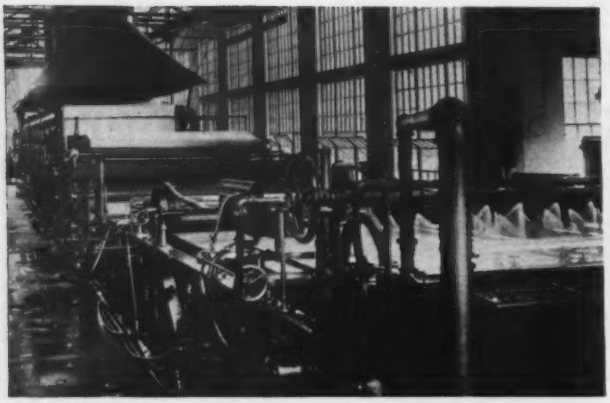
Other American Equipped Mills

Manitoba Paper Company
Ontario Paper Company, Ltd.
Price Bros.

UNITED FILTERS CORPORATION

Main Office and Laboratory: Hazleton, Pennsylvania

New York Chicago Salt Lake City Los Angeles
Export Office—25 Broadway, New York City Code Address—Unifilter, New York



© Ewing Galloway

Get this *double* cleaning economy

IMPORTANT time and labor savings are not the only benefits of using Oakite for paper mill cleaning.

Still another economy—a remarkable saving in material—results from cleaning the Oakite way. Because of its more vigorous action, a smaller quantity of Oakite is required for washing felts, cleaning Fourdrinier wires, cylinder rolls, screens, sieve cloths and other equipment. Oakite will do three or more times the work of soaps, soda, soda ash and similar cleaners.

An Oakite Service Man is at your disposal to enable you to obtain this *double* Oakite economy and the better, more thorough cleaning that goes with it. Write for particulars, without obligation.

Oakite is manufactured only by
OAKITE PRODUCTS, INC., 48A Thames St., NEW YORK, N.Y.
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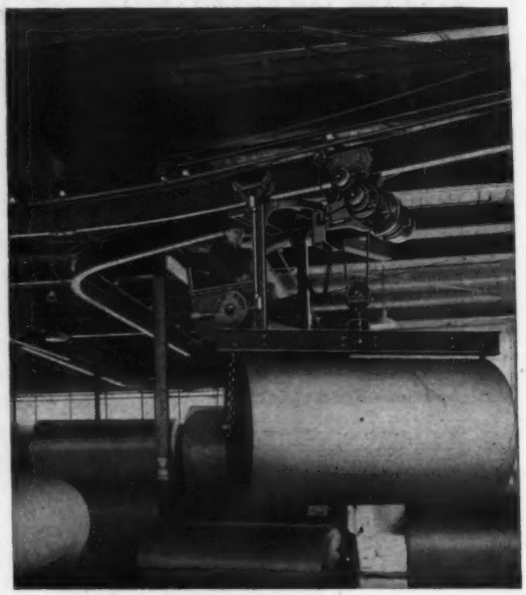

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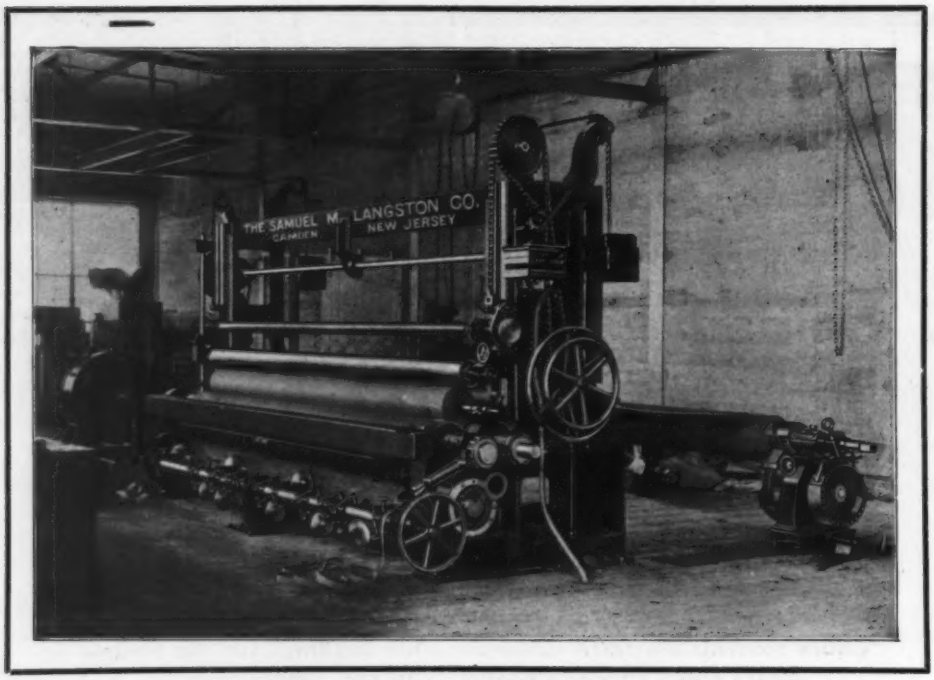

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ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SIXTH YEAR

Published Every Thursday by the

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PAPER

Vol. LXXXV, No. 7 Thursday, August 18, 1927

Paper Ranked Seventh Among Major Industries

According to Census of 1925 the Pulp and Paper Industry Employed an Average of 124,000 Wage Earners and the Volume of its Product was $972,000,000—There Were 1,885 Paper Making Machines in the United States in 1925—Additional Installations of 28 Were Made in 1926

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 15, 1927.—Paper production and the paper situation generally is taken up in some detail in Commerce Yearbook which has just been released by the Department of Commerce. In this connection the Yearbook says:

During 1925, the most recent year for which census statistics are available, the total production of paper was 9,182,000 short tons, or nearly 12 per cent more than in 1923; all classes shared in the increase, except hanging paper, which showed a decrease of 5 per cent. The output of news print, which in 1925 was 1,530,000 tons, increased in 1926 to 1,678,000 tons, according to the News Print Service Bureau. Average prices in 1926 showed a slight decline from the level established in 1925, news print alone having dropped 7 per cent. The total value of imports of paper base stocks, paper and printed matter in 1926 was over $275,000,000, and was greater by nearly 10 per cent than similar imports in 1925, the largest reported to that time. Imports of news print in 1926 increased by nearly 28 per cent in quantity over 1925, while imports of pulp during the same period were nearly 5 per cent greater. Imports of pulpwood decreased by over 7 per cent. Exports of paper and paper products in 1926 increased almost 12 per cent in value as compared with 1925, while exports of books and other printed matter showed a gain of over 4 per cent.

General Position and Character

The manufacture of pulp and paper is one of our major industries and includes as principal groups, according to the census of 925, board, book, wrapping, news print, writing, tissue, building elt, and absorbent papers, in order of importance. The output of paperboard of all kinds has increased in quantity about nine times since 1900, and has shown a growth of 5 per cent in value since the biennial census of 1923. This branch of the industry is now the most important from the point of view of tonnage. The output of book paper in 1925 increased 10 per cent over 1923 and that of wrapping paper about 9.5 per cent, while news print increased less than 3 per cent in the same period.

Based on the preliminary data of the last census of manufactures (1925), the combined paper and printing industries ranked seventh among the 16 major groups of manufacturing industries, registering no change in this respect since 1923. The total value added by manufacture for this group in 1925 was $2,529,450,000, or slightly over 9 per cent of the total for all manufacturing industries combined. Table 1 shows the growth of both the paper and printing industries by census years since 1899, together with the status of the subsidiary branches in 1925. It should be noted that the several important industries classified under printing and publishing are shown in detail in Table 10, and also that engravers' materials and wall paper, shown as separate items in this table, were added to the industry in 1925.

TABLE 1

PAPER AND PRINTING INDUSTRIES

Note.—The cost of materials and value of product in each group invloves some duplication owing to the use of the product of one establishment as material for another. No combined totals, for the group as a whole, are given on account of the still greater duplication. Value added by manufacture is a net figure.

Industry and year	Establishments	Wage earners (average number)	Primary horsepower	Wages	Cost of materials	Value of products	Value added by manufacture
					—Thousands of dollars—		
The group as a whole:							
1899	26,638	298,820	897,348	140,799	.....	.....	393,480
1914	37,209	453,006	2,039,073	296,566	.....	.....	875,548
1919	36,424	510,049	2,346,682	564,722	.....	.....	1,706,631
1921	25,377	467,256	(1)	637,432	.....	.....	1,818,193
1923	25,799	527,019	2,743,529	743,050	.....	.....	2,227,870
1925	26,553	536,766	3,060,794	805,516	.....	.....	2,529,450
Paper and woodpulp:							
1899	763	49,646	761,943	20,746	70,530	127,326	56,796
1914	718	88,457	1,611,954	53,246	213,181	332,147	118,966
1919	729	113,759	1,849,699	135,691	467,483	788,060	320,577
1921	738	105,294	(1)	127,029	445,992	667,436	221,444
1923	746	120,677	2,178,623	151,477	573,727	907,347	333,620
1925	763	123,842	2,427,010	160,146	605,860	971,882	366,022
Manufactures of paper not made in paper mills:							
1899	1,143	41,283	19,984	13,124	31,281	60,755	29,474
1914	1,711	74,630	78,740	33,473	93,471	174,681	80,940
1919	1,919	90,497	109,692	73,526	240,589	440,866	200,277
1921	1,837	76,290	(1)	71,537	208,080	385,747	177,667
1923	1,907	93,866	124,664	93,544	289,220	524,126	234,906
1925	1,931	93,834	136,982	98,683	300,800	558,529	257,729
Printing and publishing and allied industries:							
1899	23,814	195,260	107,647	99,816	103,654	395,187	291,533
1914	33,471	272,092	327,103	195,510	257,848	901,535	643,687
1919	32,476	287,278	361,124	331,519	571,510	1,699,789	1,128,279
1921	21,850	268,081	(1)	407,687	647,296	1,999,915	1,352,619
1923	22,122	291,029	405,194	459,856	647,975	2,222,537	1,574,562
1925	22,725	296,324	458,842	502,114	673,985	2,482,065	1,808,080
Other industries related to printing and publishing:							
1899	918	12,631	7,774	7,113	9,243	24,920	15,677
1914	1,309	17,827	21,276	14,336	16,496	48,452	31,956
1919	1,300	18,515	26,167	23,986	28,619	86,117	57,498
1921	952	17,591	(1)	31,179	31,003	97,466	66,463
1923	1,024	21,447	35,048	38,173	33,496	118,278	84,782
1925	1,134	22,766	37,960	44,574	33,590	131,209	97,619

MANUFACTURES OF PAPER, 1925							
Boxes, paper	...1,229	57,148	84,265	57,172	151,712	281,944	130,232
Bags, paper, exof those made in paper mills.	66	5,585	6,414	5,524	29,957	45,978	16,021
Envelopes	135	9,052	10,288	9,987	27,423	51,189	23,766
Labels and tags.	113	5,356	4,808	6,730	13,096	28,045	14,950
Paper patterns..	16	1,243	813	1,595	2,001	13,665	11,664
Card cutting and designing	49	1,086	1,353	1,084	2,436	6,201	3,765
Cardboard, not made in paper mills	13	978	1,795	1,188	3,475	7,288	3,814
Paper goods, not elsewhere classified	310	13,386	35,324	15,403	70,700	124,217	53,518

(1) Not called for in schedule for 1921.
Source: Bureau of the Census.

Pulp, Paper, and Paper Manufactures

The United States ranks first by a large margin among the paper-producing countries of the world is followed by Germany Canada, and Great Britain. Complete data for 1926 are not available for many foreign countries, but it is estimated from various sources that the total paper production of the world for that year was approximately 19,000,000 short tons. Of this the United States alone produced and consumed well over one-half.

The industry is concentrated largely in the northeastern and Lake States, principally because of the availability there of primary raw materials and water and hydroelectric power.

One of the more recent developments of note in the industry has been the development of the kraft pulp and paper industry in the South Atlantic and Gulf States where these products are being manufactured from the woods classed broadly as southern pine.

Production

According to the census of 1925 the pulp and paper industry employed an average of about 124,000 wage earners and the value of its products was $972,000,0000. There were 1,885 paper-making machines in the United States in 1925 and there were additional installations of 28 during 1926. Total machine capacity in 1925 was 11,252,000 tons, increasing in 1926 to 12,000,000 tons, while the actual production was 9,182,000 tons and 10,000,000 tons, respectively. These figures indicate that the industry has been operating at about 82 per cent of capacity over the past two years.

Pulpwood Consumption and Wood Pulp Production

The paper consumed in and exported from the United States, the great bulk of which is manufactured from wood, is estimated by the United States Forest Service to have required the consumption of 10,965,000 cords of pulpwood in 1925, and 12,341,000 cords in 1926. Of the quantity consumed during the latter year, 5,479,000 cords were from domestic sources and 4,973,000 cords were imported from Canada in the form of pulpwood, pulp, and paper products. The relative proportion of our paper supply derived from domestic pulpwood continues to decline, as may be seen from Table 2.

TABLE 2
SOURCE OF PULPWOOD USED FOR PAPER CONSUMED IN AND EXPORTED FROM THE UNITED STATES
[Wood pulp and paper, imported or exported, converted into terms of pulpwood. In thousands of cords.]

Item	1899	1904	1909	1914	1919	1921	1923	1925	1926
Pulpwood Consumed									
Total	2,075	3,397	4,572	6,071	7,426	6,888	10,113	10,965	12,341
For:									
Domestic requirements	1,950	3,259	4,420	5,886	6,806	6,649	9,924	10,753	12,129
Export	125	138	152	185	620	239	189	212	212
Source:									
Domestic	1,617	2,476	3,210	3,642	4,446	3,740	4,637	5,006	5,479
Imp. from Canada	420	763	1,025	1,630	2,741	2,378	3,859	4,235	4,973
Other imports	38	158	337	799	239	770	1,617	1,724	1,889
Per cent from each source:									
Domestic	78.0	72.9	70.2	60.0	59.9	54.3	45.8	45.7	44.4
Imp. from Canada	20.2	22.5	22.4	26.8	36.9	34.5	38.2	38.6	40.3
Other imports	1.8	4.6	7.4	13.2	3.2	11.2	16.0	15.7	15.3

Total wood pulp production in the United States in 1925, according to the 1925 biennial census, amounted to 3,953,000 tons as compared with 3,789,000 tons in 1923, an increase of nearly 4.5 per cent during the two-year period.

Production of Paper

The total production of paper in 1925 was 9,182,000 tons, the largest output ever reported by the industry. This was nearly 12 per cent greater than the 1923 production and was about 70 per cent above the production of the year 1921 when the industry was severely depressed. In actual tonnage output, board ranks first, followed by news print, book, and wrapping papers. In value, the relative rank of these grades is as follows: Boards, book, wrapping, and news print. In the production of news print, the United States yielded first place to Canada during the second half of 1925, the output of the Dominion having consistently exceeded that of this country since that time.

TABLE 4
ESTIMATED PRODUCTION OF SPECIFIED KINDS OF PAPER
[In thousands of short tons]

Quarter or month	Paper: Total	News print	Boxboard	Book	Wrapping	Fine	All other	Wood pulp: Mechanical	Chemical
1924									
January-March	1,857	369	562	302	271	97	257	478	618
April-June	1,825	385	508	314	240	96	282	551	610
July-September	1,771	348	537	293	242	84	267	329	537
October-December	1,892	369	538	322	263	94	307	391	625
1925									
January-March	1,949	372	556	326	274	113	308	428	633
April-June	1,929	391	540	323	265	112	298	528	608
July-September	1,941	364	592	311	270	107	296	320	588
October-December	2,005	403	588	324	279	117	295	433	641
1926									
January-March	2,068	416	605	342	271	121	314	439	662
April-June	2,082	429	630	338	260	117	309	542	671
July-September	2,064	416	652	320	267	110	299	389	657
October-December	2,062	419	598	346	276	113	311	479	682
December, 1923	522	118	150	82	73	26	71	163	169
December, 1924	617	121	171	106	88	31	101	123	199
December, 1925	654	137	190	108	90	38	91	152	209
December, 1926	639	135	165	118	88	37	96	147	219

TABLE 3
PRODUCTION OF PAPER AND WOOD PULP—CENSUS RETURNS
[Quantities in thousands of tons of 2,000 pounds; values in thousands of dollars]

Product	Quantity 1914	1919	1921	1923	1925	Value 1914	1919	1921	1923	1925
Total paper	5,270	6,099	5,431	8,029	9,182	291,588	673,049	585,735	812,509	862,589
Standard news print, in rolls and sheets	1,313	1,324	1,237	1,521	1,563	52,943	98,559	114,315	110,865	106,083
Hahging	97	69	57	111	105	4,489	6,043	5,949	10,285	9,506
Poster, novel, tablet, lining, etc.	[1] 8	80	35	55	84	[1] 491	7,273	4,174	4,960	7,096
Book [2]	904	951	792	1,208	1,328	70,102	142,280	122,930	169,286	175,525
Cover	22	22	16	21	24	2,809	5,643	4,112	4,973	5,806
Fine	248	325	231	377	474	34,055	87,741	61,314	89,098	105,474
Wrapping (or coarse)	[3] 911	[3] 858	827	1,184	1,298	[3] 51,308	[3] 108,529	103,259	141,532	143,901
Boards	1,292	1,867	1,740	2,793	3,281	44,870	124,091	104,346	182,867	192,628
Tissue	115	191	186	251	281	11,536	40,696	33,647	44,144	45,735
Absorbent	14	13	12	16	51	1,458	3,209	2,667	3,777	10,000
Building	244	195	217	345	[4] 555	9,476	17,737	12,842	23,529	[4] 44,031
All other [2]	[3] 103	[3] 201	81	148	138	[3] 8,053	[3] 31,247	16,179	27,195	16,803
Wood pulp:										
Total [5]	2,893	3,518	2,876	3,789	3,953	.....	.....	.....	.....	.....
For sale or transfer	912	1,100	868	1,063	913	31,678	80,095	63,374	65,497	55,200

[1] Reported as poster only.
[2] Excludes plate, lithograph map, woodcut, etc., which was included in "All other paper" for 1923 to avoid disclosing operations of individual establishments. Corresponding data for 1914, 1919, 1921, and 1925 also included in "All other paper" to preserve comparability.
[3] Figures are not strictly comparable with later years, owing to the exclusion in these years of bag paper which was not reported separately, but, included in "All other paper" and which since 1919 has been reported under "Wrapping (or coarse) paper."
[4] Not strictly comparable with earlier years owing to a change in classification.
[5] Figures include wood pulp consumed in mills in which manufactured.
Source: Bureau of the Census.

Data furnished by trade associations, which do not include all mills, show that the combined production of paper and board increased in 1926 as compared with 1925 relatively more than in 1925 as compared with 1924. Production was quite uniform from month to month and seasonal variation was small, as may be seen in Table 4.

News Print

Monthly and annual data on the production of news print paper in both the United States and Canada are compiled by the News Print Service Bureau. According to these figures, there was a marked increase in news print production in both countries in 1925 as compared with 1924, and a still greater increase in 1926. Production in the United States, while it had previously been but little higher than immediately before the war, in 1926 showed an expansion of about 10 per cent over 1925 and nearly 30 per cent over 1916. The Canadian production, most of which is shipped to the United States, in 1926 showed an increase of nearly 24 per cent over 1925 and was over three times as large as in 1916. Imports into the United States, about 90 per cent of which are of Canadian origin, have also shown phenomenal growth.

TABLE 5
NEWS PRINT: PRODUCTION IN UNITED STATES AND CANADA, TOTAL IMPORTS AND EXPORTS, AND IMPORTS OF UNITED STATES FROM CANADA
[Thousands of short tons]

Calendar year	Domestic production [1]	Total imports	Total exports	Imports from Canada	Canadian production
1913	1,305	220	43	(2)	350
1914	1,313	315	61	(2)	415
1915	1,239	368	55	(2)	489
1916	1,315	468	77	(2)	608
1917	1,359	559	94	(2)	686
1918	1,260	596	97	581	735
1919	1,375	628	110	624	803
1920	1,512	730	46	679	875
1921	1,225	793	17	657	808
1922	1,448	1,029	26	896	1,082
1923	1,485	1,309	16	1,108	1,266
1924	1,481	1,357	17	1,197	1,353
1925	1,530	1,448	23	1,295	1,522
1926	1,678	1,851	19	1,657	1,982

Monthly news print production figures for 1925 and 1926, in Table 6, show in addition to the seasonal variation inherent in the industry a regular and generally a pronounced increase for each month as compared with the same months in previous years. Imports have also increased steadily since 1922, and in 1926 were greater in volume than in any previous year. Exports of news print, on the other hand, while evidencing considerable variation from year to year, have decreased measurably since the close of the war.

Progress in Simplification

Simplified practice recommendations were adopted by several general conferences in the paper and pulp industry during the year. As a result of one of these conferences a simplified practice recommendation was adopted covering stock sizes for paper for general printing and publishing, for book publishers, and for forms and letterheads. It was unanimously recommended also that all paper substance weights shall be stated in terms of the basic 25 by 40 inch size. Sufficient time, however, has not elapsed to permit the universal acceptance of this recommendation. Grocers' paper bags were reduced from 6,280 sizes and varieties to 4,700, which was estimated to permit a potential saving of $600,000 a year in paper stocks alone. The number of thicknesses of box board was reduced from 244 to 60 as the result of a simplified practice recommendation developed after several months of discussion. In tissue paper, 34 sizes and varieties were reduced to 9 as the result of a simplified practice program adopted by this industry. In addition to binder board, grades and qualities of bond, ledger, and writing papers, and other paper products reported under the section on "Printing and Publishing" active work was under way at the end of the year toward simplification of waxed paper, paper boxes and cartons, salt packages, bolt and nut containers. Blank books, wrapping paper, file folders, merchandising packages and envelopes, were suggested as items in need of simplification.

Price Movement and Market Conditions

The Bureau of Foreign and Domestic Commerce has compiled a series of index numbers of prices of pulp and paper based on data published by the Paper Trade Journal, which is a continuation of the series instituted by the Federal Trade Commission. As will be seen in Table 7, the price of mechanical ground wood pulp, which fell markedly in 1924 and made a partial recovery early in 1925, rose in April, 1926, to the level of January, 1925, and remained stationary until the close of the year. Prices of domestic bleach sulphite pulp, which advanced at the beginning of 1925 and rose still further in the latter part of the year, remained stable until the second quarter of 1926 when they declined to the lowest point since 1924.

News print declined slightly in 1925 from the 1924 level and at the opening of 1926 experienced a still further drop after which it remained unchanged during the remainder of the year. Book paper prices have shown no change in level since the second quarter of 1925 when they decreased slightly as compared with 1924. The demand for these grades is fairly constant and is but slightly affected by general economic conditions.

Wrapping paper and board prices are more variable and are influenced much more strongly by the general level of business activity. The former, however, has experienced no change since the middle of 1925 when a slight drop was noted, while the latter has fluctuated considerably during both 1925 and 1926, principally in a downward direction.

Table 8 shows the changes in the price of news print in 1913, and from 1919 to 1926 by quarterly periods.

Increased demand was noticeable in practically all lines during 1925 and 1926, which was most pronounced in news print and to a somewhat lesser degree in book paper and boards. This was

[1] Figures for census years differ slightly from those reported by the Bureau of the Census.

[2] Figures for imports of news print paper from Canada, by calendar years, are not available prior to 1918. However, the figures for fiscal years show that 99 per cent of the total imports of news print paper into the United States was imported from Canada in each of these years.

Sources: News Print Service Bureau; imports and exports from Bureau of Foreign and Domestic Commerce.

TABLE 6
PRODUCTION AND IMPORTS OF NEWS PRINT, BY MONTHS
[In short tons]

Month	Production				Imports			
	1922	1924	1925	1926	1922	1924	1925	1926
Total	1,447,688	1,481,425	1,530,316	1,678,669	1,029,268	1,357,233	1,448,425	1,850,675
January	105,808	131,172	129,442	140,026	82,482	107,594	112,586	126,953
February	97,786	119,744	114,268	129,622	82,390	103,430	110,942	133,219
March	117,507	119,934	127,835	145,910	78,031	121,904	127,918	158,400
April	111,861	129,614	133,098	145,327	77,369	111,944	123,673	168,463
May	129,950	135,910	129,463	141,032	81,352	113,262	123,457	134,870
June	127,230	122,549	128,847	142,166	84,337	116,546	126,407	161,817
July	120,839	115,525	121,550	140,516	80,337	112,173	117,479	153,865
August	133,236	117,075	121,339	139,259	81,780	109,958	102,741	161,063
September	125,402	117,723	121,594	136,167	66,570	107,990	111,188	139,713
October	130,682	130,959	135,662	143,148	118,010	114,121	145,088	172,603
November	127,983	119,315	130,539	140,427	98,115	113,071	124,861	169,549
December	119,404	121,905	136,681	135,069	98,494	125,241	122,085	170,158

Sources: Production from News Print Service Bureau, except for year 1922, which is from Federal Trade Commission; imports from Bureau of Foreign and Domestic Commerce.

TABLE 7
INDEX PRICES OF SELECTED CLASSES OF PULP AND PAPER

Month	News print	Book paper [1]	No. 1 jute manila	Boards [2]	Groundwood pulp	Domestic bleached sulphite pulp	General wholesale price index
1913:							
January	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1920:							
July	271.4	383.6	294.7	369.2	690.5	241.4	241.0
October	301.6	397.3	336.8	353.8	571.4	431.0	211.0
1921:							
January ...	316.7	287.7	189.5	153.8	333.3	275.9	170.0
July	248.4	209.0	168.4	101.5	128.6	189.7	141.0
1922:							
January	195.8	180.3	178.9	115.4	152.4	155.2	138.0
July	184.4	184.9	178.9	103.8	133.3	137.9	155.0
1923:							
January	195.3	198.6	178.9	192.3	209.5	155.2	156.0
July	197.9	195.2	178.9	176.9	166.6	155.2	151.0
1924:							
January	195.3	195.2	178.9	161.5	190.5	146.6	151.0
July	190.1	196.6	157.9	119.2	131		
December ..	190.1	184.9	189.5	126.9	131.0	119.0	157.0
1925:							
January	182.3	184.9	189.5	134.6	142.9	129.3	160.0
April	182.3	181.5	178.9	146.2	133.3	129.3	156.2
July	182.3	181.5	191.4	133.8	133.3	129.3	159.9
October	182.3	181.5	189.5	133.8	133.3	137.9	157.6
December ..	182.3	181.5	189.5	133.8	133.3	137.9	156.2
1926:							
January	169.3	181.5	189.5	133.8	133.3	137.9	156.0
April	169.3	181.5	189.5	142.3	142.9	137.9	151.1
July	169.3	181.5	189.5	126.9	142.9	129.3	150.7
October	169.3	181.5	189.5	134.6	142.9	125.9	149.7
December ..	169.3	181.5	189.5	126.9	142.9	125.9	147.2

[1] Based on average prices of machine finished and supercalendered book paper.
[2] Based on average prices of newsboard and chipboard.
Sources: News print index was based upon Federal Trade Commission quotations on weighted average contract price standard roll news, f.o.b. mill in carload lots, to and including the second quarter, 1923; all other paper and pulp index numbers compiled from minimum market prices as given in the Paper Trade Journal in its issues nearest the 15th day of the first month of the quarter. Wholesale price index from United States Department of Labor.

owing largely to an increase in the circulation of our daily and Sunday papers, combined to some extent with a growth in the actual number of such papers published. There was also, according to the News Print Service Bureau, an increase of 5 per cent in advertising space utilized in 1926 as compared with 1925. The demand for book paper showed a less pronounced growth, while box and container boards were in greater demand because of a growth in the use of those materials as shipping containers. This increase is also a reflection of the upward trend in business and the greater movement of merchandise.

Foreign Trade—Imports

Imports of pulpwood, pulp, and paper during 1926 were valued

TABLE 8
NEWS PRINT PRICES
[Cents per pound]

Year	January	April	July	October	Yearly average
1913	1.92	1.94	2.01	1.99	1.96
1919	3.68	3.64	3.63	3.84	3.74
1920	4.36	4.73	5.21	5.79	5.10
1921	6.08	5.41	4.77	4.19	5.02
1922	3.76	3.57	3.54	3.61	3.62
1923	3.75	3.83	3.80	3.75	3.78
1924	3.75	3.75	3.65	3.65	3.70
1925	3.50	3.50	3.50	3.50	3.50
1926	3.25	3.25	3.25	3.25	3.25

Sources: Federal Trade Commission to and including April, 1923; thereafter minimum quotations published in the issue of the Paper Trade Journal nearest the 15th of each month.

at $275,471,000, an increase of nearly 10 per cent over similar imports in 1925 and a little more than 17 per cent over 1924. Total imports of paper base stocks aggregated $121,527,000 in 1926 as compared with $118,795,000 in 1925. Of the 1926 total over 75 per cent represents pulp, 12 per cent pulpwood, and the remainder rags and other stocks. A slight decline in both quantity and value of pulpwood imports occurred in 1926. (Table 9.)

Total imports of paper except printed matter aggregated $139,537,000 in 1926, an increase of over 17 per cent as compared with 1925. The major portion of this increase was in news print. Slight decreases in value occurred in imports of wrapping paper, cigarette paper, and paper board, although the actual tonnage of board imported showed a slight increase.

Exports

Our total exports of pulp and paper products in 1926 amounted in value to $53,726,000, an increase of nearly 6 per cent over 1925 and almost 12 per cent over 1924. Total paper except printed matter exported was valued at $26,800,000, paper base stocks at slightly under $5,000,000, and books and other printed matter at nearly $22,000,000. The largest individual items entering into our export trade were writing paper, envelopes, cover paper, book and surface coated papers, and bags, boxes, and cartons. Wrapping paper and boards were also of considerable importance. All of these articles showed marked increases in the actual tonnage exported, except vulcanized fiber which showed a decrease. Table 9 shows the quantity of our exports of wood pulp and paper for each of the past four years.

Activity of Principal Foreign Countries

The principal pulp and paper producing countries outside the United States are Canada, Sweden, Germany, Norway, and Finland. While Canada is the most important from the tonnage point of view, its specialty is news print, most of which is exported to

(*Continued on page 26*)

TABLE 9
EXPORTS AND IMPORTS OF PULPWOOD, WOOD PULP, PAPER, PAPER MANUFACTURES, AND PRINTED MATTER

NOTE.—Figures for quantity are in short tons for all items except imports of pulpwood, which is shown in cords.

Item	Quantity (short tons) 1923	1924	1925	1926	Value (thousands of dollars) 1923	1924	1925	1926
EXPORTS								
Total pulpwood, pulp, and paper products	.....	.....	.....	.....	46,347	47,242	50 664	53,726
Paper base stocks, total	.....	.....	.....	.....	3,294	4,249	5,783	4,964
Wood pulp	23,068	32,098	37,995	34,225	1,295	2,042	2,441	2,084
Pulpwood, rags, and other paper stock	.....	.....	.....	.....	1,999	2,207	3,342	2,879
Paper, except printed matter, total	.....	.....	.....	.....	24,046	23,065	23,844	26,829
News print	16,357	17,159	22,738	19,259	1,637	1,773	2,025	1,849
Book paper, including surface coated	15,286	10,970	10,575	11,994	3,607	2,585	2,496	2,467
Wrapping paper	13,374	12,529	14,368	16,508	2,176	2,041	2,173	2,234
Writing, envelopes, and cover paper	5,318	4,040	4,134	7,677	1,962	1,500	1,606	2,628
Tissue, toilet, and crepe paper	4,004	3,663	4,393	4,836	1,392	1,299	1,563	1,728
Bristol board and strawboard	29,085	36,010	16,754	20,920	2,839	2,877	1,711	2,203
Bags, boxes, and cartons	9,810	12,028	14,988	15,680	1,936	2,139	2,435	2,457
Vulcanized fiber, sheets, strips, rods, and tubes	2,321	2,066	2,790	2,677	1,296	1,315	1,664	1,590
All other	.....	.....	.....	.....	7,200	7,536	8,171	9,672
Books & other printed matter, including playing cards	.....	.....	.....	.....	19,007	19,928	21,037	21,934
IMPORTS								
Total pulpwood, pulp, and paper products	.....	.....	.....	.....	226,517	235,048	251,374	275,471
Paper base stocks, total	.....	.....	.....	.....	101,959	107,314	118,795	121,527
Pulpwood (cords)	1,347,927	1,279,975	1,483,231	1,383,619	13,406	13,108	15,130	14,176
Wood and other pulp	1,384,092	1,525,097	1,665,992	1,735,633	74,793	75,868	81,986	91,508
Rags and other paper stock	315,426	356,030	386,251	334,561	13,760	18,338	21,679	15,842
Paper, except printed matter, total	.....	.....	.....	.....	115,659	117,673	119,201	139,537
Standard news print	1,308,843	1,357,233	1,448,425	1,850,675	98,021	101,297	103,717	123,982
All other printing paper	8,397	13,355	8,305	8,188	831	1,126	809	827
Wrapping paper	44,006	24,825	9,985	7,212	3,906	1,931	875	758
Pulpboard and other paper board	51,788	54,360	51,526	55,493	2,962	2,861	2,659	2,634
Cigarette paper	6,097	5,490	5,326	4,138	3,211	3,028	2,935	2,183
Tissue paper	1,018	1,202	1,357	1,441	917	986	1,164	1,405
All other	.....	.....	.....	.....	5,811	6,444	7,041	7,749
Books and other printed matter	.....	.....	.....	.....	8,900	10,061	13,378	14,407

Work Begins on Cellulose Institute, Montreal

Superstructure Will House Offices of Canadian Pulp & Paper Association, the Forest Products Laboratories, and the Department of Cellulose & Industrial Chemistry of McGill University—Keen Competition for Timber Limits

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 15, 1927.—Work has started on the superstructure of the Cellulose Institute, which is being erected on the site of the Forest Products Laboratory in Montreal. The building will house the offices of the Canadian Pulp and Paper Association, the Pulp and Paper Division of the Forest Products Laboratories, and the Department of Cellulose and Industrial Chemistry of McGill University.

The building will be a stone structure of three stories, with a basement and an attic. The basement will be used for storerooms by the Forest Products laboratories and for testing laboratories. The ground floor will contain the office of the Forest Products laboratories, the Canadian Pulp and Paper Association offices and a lecture room. The second and third floors will be occupied chiefly by the department of cellulose and industrial chemistry of McGill under Dr. Harold Hibbert. Dr. Hibbert will have his offices on the second floor and a number of rooms will be allotted to organic chemistry investigations.

A special room on the second floor will be used for experimental work in danger of causing fire. The third floor will be devoted almost entirely to physical and collodial chemistry and there will also be some private research laboratories, a photographic room and room for nitration of cellulose.

Canadian Celanese Producing

The new plant of Canadian Celanese, Ltd., of Drummondville, Que., which started partial operation recently, now has over 50 looms at work, and it is confidetly expected that work on the plant will be fully completed and the plant producing at capacity by the end of the current year.

Big Transmission Line Completed

The new transmission line of the Shawinigan Water and Power Company from Lac Malinge to Quebec City has been completed Something over a year ago a survey party set forth to map out the 130-mile route over which the future will doubtless see hundreds of thousands of horsepower of electrical energy being brought from the head of the Saguenay River to the more populous sections of the Province. The line has now been opened and something like 45,000 horsepower is now being delivered, while in a year or so it is expected that the full 100,000 horsepower which Shawinigan will take from the Quebec Development Company will be coming up through the cables. It is the longest transmission line in this province and one of the longest on the continent.

The power which it will deliver will go to supply the Anglo-Canadian and Ste Anne Paper Companies among other industries, while the fact that it is available will doubtless prove another step in the industrial development of the Quebec district.

Extensive Tree Planting

The Quebec Department of Lands and Forests has planted 1,600,000 trees this year. This is a record figure, but it will soon be surpassed, for the Department will plant over 3,000,000 trees in all parts of the Province next year.

Clash Over Timber Concession

While the Quebec Pulp and Paper Mills, formerly the Chicoutimi Pulp Company, are making efforts to obtain timber limit concessions from the Quebec Government, objection is being raised by the news print interests, including Price Bros. & Co., and others.

According to the local papers, the Goverment was to have ordered the leasing of a section of timber limits north of Chicoutimi, but it is said that a delay of several months may follow before anything is done unless a decision is reached at this week's meeting of the Quebec Cabinet.

The clash between the two groups of interests is said to be the most serious one which has ever occurred in Quebec.

Railway Nearly Completed

The new railway linking the Canadian National Railway line with Mistassini will be completed in the course of the present week. This railway will allow the Lake St. John Pulp and Paper Company, which is controlled by the Walberg interests, to be in direct communication with the Canadian markets. The company is erecting large pulp and paper mills..

Frazer Companies' Expansion

The net earnings of the Fraser Companies for the six months ending June 30 last are reported to be substantially ahead of those for the same period last year, due largely to increasingly profitable operations of the company's fine sulphite paper mill at Madawaska, which a year ago was just coming into full commercial production and now is operating most satisfactorily at full capacity with substantial orders booked ahead.

With the Madawaska paper mill operating at capacity, Fraser's are now converting into fine sulphite paper approximately half the production of bleached sulphite pulp at the Edmunston mill. It is understood that arrangements are being made for the installation of additional paper machines at Madawaska, thereby bringing the company's production to the point that its entire bleached sulphite pulp production will be turned into fine sulphite paper on an increasingly profitable basis.

Seneca Paper Co. Files Bankruptcy Petition

[FROM OUR REGULAR CORRESPONDENT]

GENEVA, N. Y., August 15, 1927.—The Seneca Paper Company has filed a voluntary petition in bankruptcy in United States District Court in Buffalo. Several Rochester people, including the late F. H. Compton, were interested in the company, which has a modern toilet paper plant in Middle street.

In the petition, the assets of the company are placed at $57,154.37 and the liabilities at $25,798.02. It states also that the assets are based on an appraisal made by the American Appraisal Company in 1924 and should be realized, providing the company is reorganized or a market is found.

The principal assets are land and buildings, $20,170.38; accounts receivable, $9,180.89; stock on hand, $7,000; machinery and equipment, $14,831.67. Creditors' claims are by the Burroughs Paper Company of Little Falls, $3,570; Moyer & Pratt, Lyons Falls, $4,426.91; Geneseo Paper Company of Phoenix, $6,362.90; Geneva Trust Company, $5,500.

William O'Malley is president and A. C. Paull is secretary of the company. Both are residents of this city.

Carl Skioldebrand Leaves E. B. Eddy Co.

Carl Skioldebrand who has been sulphite superintendent at E. B. Eddy Company, Ltd., Hull, P. Q., for about two years has resigned and will make a visit to his former home in Sweden for a month or two at the same time inspecting the mills there.

On his return about the end of October he will be ready to consider another connection.

Mr. Skioldebrand studied at Darmstadt and has had mill experience at Billeruds, Bergvik, and Svano in Sweden and at York Haven, Kipawa and Kapuskasing in this country.

Erection of New Machine Started at DePere

Capacity of Second Unit Will Be Twenty-Five Tons Daily—New Boiler Also Being Installed, With Strong-Scott Burner—Manufacture of Heavy Weight Chip Board and Vat Lining Contemplated—Interest Aroused in Reforestation

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 12, 1927.—Erection of a second machine has been started by the DePere Paper Manufacturing Company at its plant at DePere, Wis. The company has made all grades of coarse wrapping paper for over a year and is reported to be branching out into the manufacture of heavy weight chip board and vat lining. The new machine will be used for this latter work.

Capacity of this second machine will be 25 tons every 24 hours. It is of the Smith and Winchester make. The addition will mean the employment of 25 more men, bringing the force to 65. Enough orders are on the company's books to take care of one month's production, according to Herman Miller, one of the proprietors.

In addition to this improvement the company also is installing a new boiler. It will have a new type of burner purchased from the Strong-Scott Company of Minneapolis.

Consolidated Bond Issue Announced

Announcement of a bond issue totaling $7,500,000 has been made by the Consolidated Water Power and Paper Company, of Wisconsin Rapids, Wis. The issue constitutes a first mortgage on its properties, and was placed on the market largely to finance the new paper mill just started by the company at Port Arthur, Ont. Some of the funds also will be used to retire a note issue and other outstanding obligations.

Menasha Sales Offices May Be Moved

Removal of its sales offices to Chicago is in contemplation by the Menasha Printing and Carton Company, of Menasha, Wis., according to a statement made by George S. Gaylord, president. The change, if made, may not take place for four or five months, but there is a desire on the part of the company to locate closer to the center of its sales territory. It is understood that several office suites in Chicago have been inspected for this purpose.

New Power House for Kaukauna

Additional power facilities are assured at Kaukauna, Wis., the location of several paper mills, through announcement that a new power house will be erected. The plant at Kaukauna is municipally owned and one of the most successful of its kind. The new building will be located on the site of the present one, using the same water power. Engineers are now investigating the possibilities and preparing the plans. No report is available on the cost of the project or the amount of horsepower to be had.

Progress at Chippewa Falls

Work is well under way on the new hydro-electric plant which the Northern States Power Company is erecting at Chippewa Falls, Wis. The foundation for an office building has been completed. Material for warehouses has arrived and these will be built rapidly also. As soon as these tasks are out of the way, construction will be started on the new dam at this place.

Reforestation Problems to Be Discussed

Paper manufacturers will join with timber owners and sawmill operators in a meeting at Green Bay, Wis., August 23, at the invitation of the Northern Hemlock and Hardwood Lumber Manufacturers Association. Problems of reforestation growing out of newly enacted legislation will be discussed. It is now possible, under the law, to exempt tree growing lands from taxation until the timber is ready to cut, and intense interest therefore has been developed in this subject. Efforts are being made to start reforestation speedily, because Wisconsin's virgin timber will not last more than fifteen years at the present rate of cutting. D. C. Everest, of the Marathon Paper Mills, Rothschild, Wis., will be one of the speakers.

J. M. Conway Addresses Lions Club

Extent to which the paper manufacturers are interested in reforestation was described by J. M. Conway, manager of the Hoberg Paper and Fibre Company, Green Bay, Wis., in an address before the Lions Club of that city. He said mills are in the front rank in this work, because the time will come otherwise when they must move their mills to new timber sources. He believes that enough trees will be grown back into the land in Wisconsin, however, so removal will be unnecessary within thirty-five to fifty years.

PAPER RANKED SEVENTH

(*Continued from page 24*)

the United States as a noncompetitive product, supplying the great demand which can not be met by our domestic mills. Imports of news print from Canada in 1926 exceeded those of 1925 by over 360,000 tons and constituted approximately 90 per cent of our total news print imports. Norway, Germany, and Sweden showed large decreases in exports of news print to this country in 1926, while imports from Finland were larger.

During the year conditions have been fairly stable in the northern European countries, with a tendency toward a slight price decrease in several lines of the paper business. This factor has made competition with these countries in consuming markets difficult to meet and has temporarily decreased the possibility of holding certain markets on a purely quality basis.

Among the Outstanding Features

Among the outstanding features of 1926 abroad may be mentioned the dissolution of the Dresden Cardboard Sales Union and the demand for lower prices of news print on the part of publishers in Germany. Many realignments in the British industry have been accomplished, including the acquisition of several large mills in Germany and the continued large investment of British capital in the paper industry in the Dominions and Colonies.

The Finnish chemical pulp industry was notably prosperous and present indications point to an increase of 80,000 metric tons in the capacity of the mills in 1927. The Norwegian mills also have matured definite plans for an expansion of about 65,000 tons of mechanical pulp and 20,000 tons of chemical pulp capacity in 1927 despite the unfavorable reaction in 1926 from the rapid rise in Norwegian exchange, the British coal strike with its consequent increase in fuel and transportation costs, and a labor conflict in the industry which began in August.

The French news print industry decreased production owing to continued heavy imports from Germany on reparations account, while the Belgian industry experienced alternate periods of activity and depression owing to exchange fluctuations. The Italian paper industry has been somewhat embarrassed by the growing domestic pulp shortage and Italian manufacturers showed marked progress in the perfection of a method for making news print from straw in 1926.

Ontario Paper Mills Continue Fairly Active

While Seasonal Conditions Have Prevailed Recently, Distributors Expect Business to Improve Materially, Following Close of Holiday Period — Benefits and Simplicity of Thousand Sheet Count Plan Gradually Becoming Apparent

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 15, 1927.—As the holiday season is drawing to a close, paper men expect that business in their line, which has been dragging for some time, will pick up materially, although no great change is in sight before the end of the present month. The mills continue busy and there has been no appreciable let-up in orders. The wrapping paper trade is good, one local firm reporting an increase of 60 per cent so far this season. The paper bag business is becoming more stabilized and prices are getting firmer with less trade warfare going on as stocks are reduced and better organization prevails in the industry. Toilet, tissues and light wrappings are in active demand.

Coated paper plants are fairly well employed for this season of the year and there is a rumor that one of the leading Ontario mills in this line is about to change ownership, a new company being formed to take over existing interests. Negotiations have been under way for some time and are nearly completed. Twines are having a good call and there has been an increase of several cents in cotton twines, which is encouraging. There are no other features of the quiet market, although jobbers report that the July paper trade was not up to what they thought it would be but they all have great hopes for the fall months.

In regard to the one thousand sheet count and the inauguration of the new net price list, inquiries made among the wholesalers elicit the information that printers generally are pleased with the new basis and there have been few complaints. All concerns are now getting familiar with the new operation and, as time goes on, it is believed that customers and paper men will realize more and more the benefits and simplicity of the new arrangements.

Tender Banquet to C. W. Paull

C. W. Paull, who for the past eight years has been manager of the Hamilton, Ont., branch of the United Paper Mills, Toronto, has been appointed sales manager with head office in Toronto. The company is extending its office premises on Spadina avenue to take care of increased business. On August 11, the employing printers of Hamilton tendered Mr. Paull a farewell banquet at Murphy's restaurant, Hamilton, and the event was largely attended. Mr. Dauphin, president of the Employing Printers Association, ably presided and the guest of the evening was presented with a suitably engraved silver platter and two silver entre dishes. The presentation was made by Mr. Dauphin and acknowledged by the recipient in a feeling manner. Addresses were also made by R. I. Finlay, of Toronto, president of the United Paper Mills and former president of the Canadian Paper Trade Association; Kenneth Walsh, who succeeds Mr. Paull as manager of the Hamilton warehouse; and Lewis Mitchell, who for several years has been a member of the sales staff of Buntin, Gillies & Company, Hamilton, and has now joined the selling force of the United Paper Mills, Hamilton. During the evening there was special entertainment and a jolly time was spent.

Paper Men Return from England

W. S. Hodge, for the past ten years manager of the London, Eng., office of the Hodge-Sherriff Paper Company, Toronto, and W. H. Sherriff, of the same company, who has been spending the past year and a half in the old country for the benefit of his health, are now in Canada. They spent a few days in Montreal with H. Douglas Cooper, manager of the Montreal office, and then came on to Toronto, where their many old friends extended them a hearty greeting after such a long absence. It is probable that Messrs. Hodge and Sherriff will take a trip to the western provinces and that Mr. Hodge will remain in Canada for some time. The firm, who are selling agents for the Wayagamack Pulp and Paper Company, of Three Rivers, Que., report that the demand for kraft paper is fair at present and has been steady for some months. The call for kraft pulp has been favorable and requisitions keep up well.

Paper Men Enjoyed Trip

The first annual moonlight excursion of the Toronto Joint Board of International Printing Trades was held on August 12 on the steamer *Cayuga* and was largely attended. A number of paper men took in the outing, which was in every way a success.

Notes and Jottings of the Industry

T. E. Gain, vice president of the Ratcliff Paper Company, Toronto, spent his holidays in Buffalo and other points.

H. B. Donovan, sales manager of the Canada Paper Company, Toronto, who was attending the world's poultry congress in Ottawa and also spent some time in Montreal, has returned home.

J. M. Finlay, secretary-treasurer of Ritchie and Ramsay, coated paper manufacturers, Toronto, has returned from a holiday trip to Duluth.

John Waters, of the sales staff of Barber-Ellis, Ltd., and Mrs. Waters, are back after spending their holidays in Ocean City, N. J.

George W. Pauline, president of Ritchie and Ramsay, accompanied by his son, who has been enjoying the past few weeks on a trip to England and Scotland, has returned home.

N. R. Wessels, of the city sales staff of the United Paper Mills, Toronto, is holidaying at Wasaga Beach, Ont.

J. Hewitt, Jr., president of Paper Sales, Ltd., Toronto, spent the past week on a visit to a number of mills at various points in the province of Quebec.

D. F. Robertson, general manager of the Canadian Paperboard Company, Montreal, was in Toronto during the past week on business. It is understood that the company will start very soon on the construction of its new board factory in Toronto, which will have a capacity of fifty tons daily.

A. G. Allen, of the sales staff of Paper Sales, Ltd., is enjoying a vacation in the Lake of Bays district near Huntsville, Ont.

H. A. Doughty, of the Canada Paper Company, Toronto, is holidaying in Detroit in company with Mrs. Doughty. W. L. Young, of the executive staff of the Canada Paper Company, is at present laid up with illness, but is making good progress.

E. A. Breckenridge, secretary-treasurer of the Thompson and Heyland Company, pulp wood exporters, Toronto, who is an enthusiastic bowler, is skipping a rink in the Dominion Bowling Tournament, Toronto, representing the Rusholme Club.

D. P. Weston, manager of sales for the Esleeck Manufacturing Company, Turner's Falls, Mass., was in Toronto on business during the past week. The United Paper Mills, Toronto, have been appointed Ontario distributors for the company in the line of onion skin, manifold, typewriter and thin bond papers.

W. H. Howell, western Ontario representative of the United Paper Mills, Toronto, left last week on a holiday motor tour to various points in Ontario.

Fred W. Halls, of the Fred W. Halls Paper Company, Toronto, was in Montreal last week on business. W. T. Halls, salesman of the company, is vacationing at Sturgeon Lake.

Arthur F. Thiele, a highly respected resident of Merritton, Ont., died recently in his fifty-first year, after a short illness. For many years he was a valued employee of the Montrose division of the Provincial Paper Mills, Ltd.

Paper Conditions "Seasonal" in Philadelphia

Business Generally Marking Time Pending Return of Manufacturers, Distributors and Dealers From Summer Vacations—Quotations Hold Firmly to Former Levels, Despite Much Lighter Demand—News Print Paper Situation Analyzed

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., August 15, 1927.—With heads of firms and workers absent from the city on vacation there is little activity in the consuming industries and the paper market during the past week assumed a time marking attitude pending the return of buyers from their mid summer holidays. In both branches of the trade paper demands were held to lowest levels of the summer. While orders for paper slumped, prices held firmly to the quotations of the more active months of springtime.

Foreign Situation Reviewed

Philadelphia paper dealers who keep in close touch with the foreign paper markets were greatly interested in the report of the Department of Commerce received last week. With our American markets so well under control and in better shape for the forward stride that is predicted for the Fall months, the pessimistic reports of the foreign paper making centers gives opportunity for the local paper men to forecast possible effects of conditions abroad on our own paper making industry. Many paper dealers believe that the extreme dullness in the foreign mills and the adjustment of labor costs to meet the curtailed demand will soon force the European manufacturers to seek an outlet for their product in America.

In Sweden, where a ⅛ per cent decrease in wages has been enforced by order of the Courts, it s possible for the Swedish manufacturers to enter the market at lower quotations. This is true of krafts and news print, extensively imported in pre-war days and throughout the war period. The passage of the English statute which will permit the free of duty importation of krafts into England may divert much of this grade to British markets and so offset the possibilities of kraft being sent to America in considerable quantities. However, there is more likelihood for Swedish news print to enter into the paper situation and local dealers are looking forward to changes effective in foreign competition in the coming year, because of the lack of tariff protection for American made newsprint.

Kraft Demand in England Protects American Product

That the heavy demand for krafts in England protects the American manufacturers from inroads of Swedish or other Scandanavian mills is a foregone conclusion. The use of krafts in manufacturing textiles as substitute for cotton in Britain consumes great quantities of these papers and there has been a decided shortage of the grades in that kingdom. Swedish mills producing a very high grade of kraft at low cost can find a very profitable market across the seas and are not likely to seek an outlet for their products on this side of the Atlantic. Local dealers who feature largely southern made krafts, therefore, are looking forward to firmness in our markets for these products for many months to come and are even inclined to the belief that higher prices will prevail.

News Print Situation Fair

While demand for newsprint continues fair and prices are steady, indicating the manufacturers have the production situation well in hand, dealers report a lack of interest in the matter of future purchases in volume at this time. The larger printers and publishers buy their news print supply under contract extending six months or longer. There is considerable imported news print of the higher grades used by local publishers for illustrated news purposes and much of this comes from Scandanavian mills. With edict of court compelling the workers to accept the lower wage scale in Sweden the local consumers will no doubt share in the cut in cost of manufacture within the coming year by reduction in prices of Swedish news print. There is growth of popularity for this high grade news print which many Philadelphia dealers assume to be second grade book paper because of its semi-coated texture that permits of reproductions for hand bill purposes and for cheaper advertising purposes.

Paper Bag Situation

Announcement has been made to the Philadelphia dealers handling bags of the larger and nationally prominent paper bag manufacturers, of the increased price effective last week in several grades of bags. Kraft bags were advanced from 5 to 10 per cent, while sulphite bags were advanced 10 per cent. This rise in quotations is in line with the policy made effective throughout the nation but was not carried out by the independent local manufacturers who have been conducting a price cutting campaign throughout the summer months in competitive bidding for business in this market.

Introduces New Kraft

An entirely new grade of kraft paper has been introduced to the Philadelphia trade by J. B. Bailey, who visited the distributors here last week as representative of the Hollingsworth and Whitney Mills, of Waterville, Me. The new kraft is called the Mitmac, and is a good looking sheet with excellent smooth surface and pliability. It was favorably received by the local distributors of the Hollingsworth and Whitney Company, and has been stocked freely for the Fall seasonal demand.

New Tissues From Old Mill

Having acquired the representation of products of the mills formerly operated by the William Mann Company, at Lambertville, N. J., J. E. Cochrane is now featuring the line of manila tissues produced in the old paper making plant that has been modernized within recent years. Mr. Cochrane, who is well known here as the former representative of the Durham Paper Company, of Durham, Pa., now controlled by the Endura Manufacturing Company of Philadelphia, offered the line of manilas in 4,000 reams 24 x 36 packing to the list of dealers with whom he has dealt for many years. These products are being distributed here along with the paper towels made by the Sun Paper Company, of Rising Sun, Md., also represented in the local industry by Mr. Cochrane. The paper towels produced by the Sun Paper Company are made in three grades, and were introduced here within recent weeks.

New Waxed Papers Appear

Wrapping paper dealers have been receiving attractive brochures accompanied by samplers of the new line of waxed papers compiled for the coming seasonal demand by the Bennington Wax Paper Company, of Bennington, Vt., and designed in a variety of colors. The line of waxed papers comprises an attractive assortment in sealing and wrapping waxed specialties. The brochure is assembled so as to give a comprehensive display of the Bennington Paper Company products in colored grades, adapted for food products, merchandise needing a protective waxed cover and for the coming Christmas coverings.

Waterproof Papers in "Whale Hide" Line

As Fall needs are anticipated, manufacturers are beginning campaign the Philadelphia territory on new offerings. Among those that were displayed to the dealers this past week were the entirely unique specialty called the Whale Hide Paper, made by the Kalamazoo Wax Paper Company, and adjunct of the Kalamazoo Vegetable Parchment Company, of Kalamazoo, Mich. It is a waterproof paper and although not a parchment product is ab-

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solutely immune to dampness or moisture and is of greater tensile strength when wet than dry. It is a specially treated paper adapted for food packing, and is made in brown, dark blue and cherry selling at from 14 to 18 cents per pound.

W. C. Hamilton & Sons on Full Time

Having recently notified the trade of the newest of products to be added to the fine paper grades manufactured in its mills, W. C. Hamilton and Sons are now operating on full time as a result of the popularity of the latest additions. The new lines are the Hamilton Vellum, a writing paper, and the Kilmory, an uncoated book paper that is made in sage, chestnut, white and Indian. The new samplers of the Victorian Book and Covers Papers will be sent to the distributors today and will give the complete range of samples of these papers, as they are lined up in the Hamilton list of products.

Philadelphia Gear Works New Plant

On September 1, 1927, the Philadelphia Gear Works, nationally known makers of gears and speed reducing units, will occupy their large and very modern new building at Erie avenue and G street, Philadelphia. For the past several years this concern has been located at Richmond and Tioga streets, and for many years prior to that, were situated at 1120 Vine street, Philadelphia.

The new home of the Philadelphia Gear Works was necessitated by the constant increase in business, and is the outcome of nearly a half century spent in making gears and allied products. The new offices and plant are right on the main line of the Pennsylvania Railroad to New York.

Southern Box Manufacturers Convention

Philadelphia headquarters of the National Paper Box Manufacturers Association has announced the annual convention of the Southern Division of the National Association to be held in Chattanooga, Tenn., August 17 and 18. Philadelphia paper trade men will represent the supply dealers division of the National Association, including Charles Matthias, of Matthias & Freeman, W. A. Welsh, of the Paper Service Company, and John Allen, of A. S. Datz & Co. Howard P. Beckett, commissioner of the National Association, will be included in the speakers program.

Schmidt & Ault Buffalo Representative

The Pennsylvania manufacturers of building papers, box board, indented, wrapping and specialty papers, the Schmidt and Ault Company, with mills in York, Pa., have appointed a Buffalo, N. Y. representative, Maurice W. Simon. The offices in the Queen City of the Lakes will be located in the Calumet Building.

York Card & Paper Co.'s Tribute to Lindbergh

It is quite appropriate that the Monoplane Bond, manufactured in the Spring Grove Mills of the P. H. Glatfelter Company, should bear to the mother of Colonel Lindbergh, Mrs. Evangeline Lindbergh, of Detroit, the proposed design which is to be used on a specially made wall paper produced by the York Card and Paper Company, of York, Pa., for the adornment of the home of the noted aviator in the Ford City. The wall paper is to decorate the Lindbergh kitchen. The York Card and Paper Company is to consign the wall paper to Mrs. Lindbergh upon the order of Mrs. James J. Walker, wife of the Mayor of New York City, who selected the paper with the assistance of Mrs. Clarence Chamberlain, wife of the second aviator to make a non stop Atlantic flight. The design, which was submitted on the Monoplane Bond for the approval of Mrs. Lindbergh, shows Colonel Lindbergh's "Spirit of St. Louis" sailing through pink and blue light clouds. The American flag and Lindbergh's head are plainly visible in the design. It was designed by Willy Herrman, a German artist, and the work was executed under the direction of Robert Euler, superintendent of the York Card and Paper Company's plant.

Globe Paper & Metal Co. Involved in Bankruptcy

An involuntary petition in bankruptcy was filed against the Globe Paper and Metal Company, 5601 Vine street, of which Max Polonsky and Jacob Weiss are proprietors. The creditors filing the petition are Park Beneficial Association, $1,100; Herman Landenson, $645, and Matusow Brothers, paper stock dealers, $485. The firm conducted a paper and paper stock business at the Vine street address.

W. E. Coe Resigns From Garrett-Buchanan Co.

After 25 years association with the Garrett-Buchanan Company, 16-20 South 6th street, W. E. Coe, assistant treasurer of the company, and for many years manager of the credit department, has severed his connection with the company. President John H. Sinex, of the Garrett-Buchanan Company, one of the veteran associates of the Philadelphia paper trade, who has for some time been absent from his desk through illness, is reported to be slightly improved after his removal from the hospital here following an operation to his summer home in Maine a fortnight ago.

Boston Paper Business Improves

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 15, 1927.—A generally stable situation prevails in the paper market here. In some quarters a more active demand is reported, with dealers looking forward to a good business for the remainder of the year. The last two weeks have shown substantial improvement. Others have not found any great increase in the volume of their sales, but feel that the summer dullness is diminishing. Prices have remained steady, and in some lines are rather buoyant. Folding box board prices show a tendency to stiffen, so that a general advance in values may develop in the near future. Single manila pulp lined board, quotable at $55 to $60 for some time, has been valued at higher figures by some.

Some grades of paper stock display a softening trend. No. 1 hard white shavings are quotable at $2.75 to $3.10, compared with a previous range of $3.15 to $3.30; No. 2 hard white at $2.60 to $2.90, compared with $3 to $3.25; solid ledger stock at $1.90 to $1.95, compared with $2 to $2.25. Two grades of old papers have risen. White blank news is quotable at $1.50 to $1.60, compared with $1.40 to $1.50, and old kraft at $1.80 to $1.95, compared with $1.75 to $1.90. Bagging and new domestic rags maintain practically the same levels. In old domestic rags, roofing stock shows a declining trend. Consumers seem to be sufficiently covered on their needs. Roofing felt manufacturers have shaved the prices to packers $1 per ton. No. 1 grade is quotable at $1.45 to $1.55 per hundred-weight, compared with $1.50 to $1.60, and No. 2 grade at $1.33 to $1.43, compared with $1.38 to $1.48.

Better Outlook for Chicago Paper Trade

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 12, 1927.—The return of the vacationist and the passing of summer has begun to add color to the Chicago Paper Market and it is prophesied that another week will find trade condition again taking on the vivaciousness and life which slowly ebbed away beginning in the early part of June, continuing through July, and reaching a climax in the last week of the month and the first week of August.

Dealers affirm that conditions here were bad, or at least not entirely satisfactory, but state that they had prepared for a much greater slump and to assume such an attitude would seem to be truly pessimistic. However, it is rather a conservation move on the part of the dealer in that his contact with the other merchandising fields bears out the fact that the lack of demand for the spring stocks of all kinds, especially consumers of paper has made it necessary for the paper trade to wait patiently until this debris is cleared away.

Fine and printing papers remain steady. The demand for wrapping paper is increasing and although it may be said that a subnormal condition still exists it is expected that the sales of this month will add materially or possibly equalize the situation. This demand may be credited to the exhaustion of small stocks and pre-fall merchandising on the part of the consumer of these grades.

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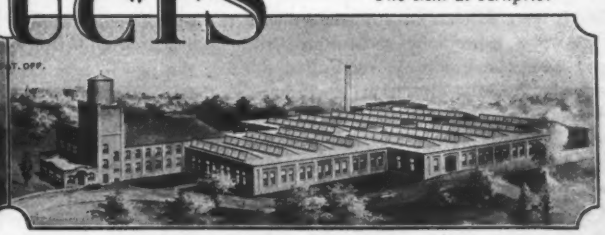

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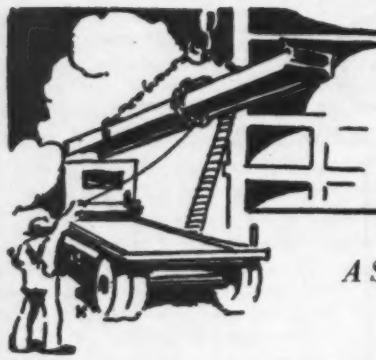

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Woronco, Mass.—The Strathmore Paper Company, Mittineague, Mass., will make extensions and improvements at its local No. 1 mill, and the plant has been closed down temporarily for the work. Changes will be made in the paper machines and additional equipment installed for greater efficiency in output with increased production. It is purposed to resume operations at the plant at the earliest date.

Newburgh, N. Y.—The new mill to be erected by the Spencer-Wynne Paper Products Company, Inc., recently organized with a capital of $750,000, will be located on a site selected at Dickson, Renwick and Robinson Avenues. It will be one-story, brick, reported to cost close to $10,000 with equipment. It is understood that a general contract for the building has been let to the H. K. Ferguson Company, Euclid Avenue, Cleveland, Ohio. Roy W. Spencer, Newburgh, will be president of the new organization, which is represented by John B. Corwin, Savings Bank Building, Newburgh, attorney. Prentis D. Wynne, 213 Ashby Road, Upper Darby, Pa., will also be an official of the company.

St. Joseph, Mich.—In connection with the recent acquisition of the local paper mill of Mullins Brothers by the St. Joseph Board & Paper Company, recently organized, the new owner is said to be planning alterations and improvements in the property, including equipment betterments, to develop full production. It is purposed to begin operations at an early date. Claude E. Nicely is vice-president and general manager. Eugene Miller, South Bend, Ind., is also interested in the new concern.

Appleton, Wis.—The Riverside Fibre and Paper Company will soon begin work on a one-story addition to its mill, comprising a third story on the present finishing department, 60 x 70 ft., reported to cost about $20,000, for which a general contract has been let to the C. R. Meyer & Son Company, 50 State street, Oshkosh, Wis. Orbison & Orbison, Appleton, are engineers.

Manchester, Conn.—A project is under way for the acquisition of the local mill of the American Writing Paper Company by interests identified with the Holyoke Paper Manufacturing Company, Holyoke, Mass., and the conversion of the plant for the manufacture of paper napkins and kindred specialties. The Chamber of Commerce, Manchester, is interested in the proposition, which provides for a subscription of $165,000 from local citizens to insure the enterprise, which is estimated to cost close to $200,000. The plant, known as the Oakdale Mills, has been closed since last spring. The new owner proposes to make alterations and improvements, with installation of additional equipment for the new line of production.

Stevens Point, Wis.—The Whiting-Plover Paper Company has begun the erection of steel frame for its proposed new warehouse addition, to be one-story, 50 x 130 ft., and will rush the building to completion. C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis., is general contractor for the extension, and will soon award a sub-contract for roofing and other finishing work.

Chillicothe, Ohio—The Fairfield Paper Box Company, Baltimore, Ohio, has plans nearing completion for a new local mill to be given over largely to the production of straw board, box board and kindred materials for utilization at the finishing plant of the company at Baltimore. The new structure will be two-story, reinforced-concrete, estimated to cost about $150,000, with equipment. Plans are being prepared by the H. K. Ferguson Company, Euclid Avenue, Cleveland, Ohio, and it is understood that this same company will receive the general building award. C. D. Griley is general manager.

Tuscaloosa, Ala.—The E-Z Opener Bag Company, Decatur, Ill., is reported to be planning the erection of a new mill in the vicinity of Riverside, near Tuscaloosa, for the production of kraft papers, for conversion into finished products at its plant at Decatur and other parts of the country. The proposed mill will consist of several units, with machine shop, pumping plant, substation and other mechanical structures, reported to cost in excess of $2,000,000, with machinery.

Shawmut, Me.—The Keyes Fibre Company, Inc., recently formed under state laws to take over and operate the plant and business of the local company of the same name, is arranging a general expansion program, to provide for large increase in production facilities. The company will acquire the Rex Pulp Products Company, Bath, Me., and will extend this interest as a division of the business. The main mill is at Waterville, Me., covering about 3 acres of land, with a capacity of 4,000,000 pie plates and other molded pulp products per day. The pulp mill is situated at Shawmut. To carry out the program, the company is disposing of a stock issue to total $1,890,000, a portion of the fund to be used for general financing and the acquisition of the Rex company. Walter S. Wyman is president.

Newport News, Va.—The Virginia Fibre Manufacturing Company, recently formed with a capital of $50,000, is said to be planning the early operation of a local plant. The company is headed by T. W. Turner, R. W. Read and R. F. Hall, 3009 Washington Avenue, Newport News.

Appleton, Wis.—The Fox River Paper Company, South Appleton street, will soon begin the erection of a new addition to its mill, to be one-story, 55 x 180 ft., reported to cost about $30,000. A general contract has been let to the C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis., which will arrange for subcontracts for miscellaneous finishing work at once.

Delair, N. J.—The Kieckhefer Container Company, manufacturer of paper boxes, cartons, etc., has completed plans for a new addition to its local plant, to be two-story, brick and steel, 120 x 420 ft., reported to cost in excess of $150,000, with equipment. A general contract for building has been let to Irwin & Leighton, Inc., 126 North Twelfth street, Philadelphia, Pa. Headquarters of the Kieckhefer company are at Sixteenth and Canal streets, Milwaukee, Wis.

San Jose, Cal.—The Muirson Label Company is completing arrangements for the early erection of a new local plant for the manufacture of paper labels and kindred paper goods, to be one-story, reported to cost about $15,000, with equipment. A con-

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tract for the building has been let to the Minton Company, Palo Alto, Cal. Charles S. McKenzie, Bank of San Jose Building, San Jose, is architect.

San Francisco, Cal.—The National Paper Products Company, 1789 Montgomery street, a subsidiary of the Zellerbach Paper Company, San Francisco, is at the head of a movement to consolidate a number of paper manufacturing interests on the Pacific Coast, covering pulp, paper board and kindred specialties. It is said that the merger will include a group of twenty plants, with total valuation of assets of the interests placed at $14,000,000. A new company will be formed under Delaware laws to take over the various individual units; it will be capitalized at $30,000,000, and 410,000 shares of stock, no par value. The Paraffine Companies, Inc., San Francisco, is interested in the project.

Wisconsin Rapids, Wis.—The Consolidated Water Power and Paper Company, manufacturer of news print, wall papers, sulphite fibre, etc., is disposing of a bond issue of $7,500,000, a portion of the proceeds to be used for general financing, expansion and betterments. The company is now operating four paper mills in Wisconsin, with total rating of about 400 tons per day, of which close to 300 tons is news print. Subsidiary organizations include the Thunder Bay Paper Company, with mill at Port Arthur, Ont., and the Consolidated Water Power Company, operating a number of hydroelectric power developments, of which three are located in Wisconsin. George W. Mead is president.

Philadelphia, Pa.—The Brown & Bailey Company, manufacturer of paper boxes and containers, is taking bids on general contract for its proposed new plant addition at 417-25 North Eighth street, to be five-story, reported to cost in excess of $100,000, including machinery. It is purposed to develop a large increase in the present output. The Ballinger Company, 105 South Twelfth street, Philadelphia, is architect and engineer.

Toronto, Ont.—The Telfer Box Company has plans under way for the erection of a new plant at 14 Duncan street, reported to cost in excess of $50,000, with equipment. Harkness, Louden & Hertzberg, Toronto, are architests and engineers.

Kenora, Ont.—The Kenora Paper Mills, Inc., has begun work on an improvement program at its local mills, comprising remodeling and alterations in present units, estimated to cost about $300,000, including additional machinery and necessary replacements in present equipment.

New Companies, Etc.

Frankfort, N. Y.—The Paper Products Corporation has been formed under state laws with a capital of $10,000, to manufacture and deal in paper goods. The company is headed by H. Seymour Getman and David H. Ames, 2 Bank Place, Utica, N. Y. It is represented by Wilbur, Winslow & Bennison, Frankfort, attorneys.

Chicago, Ill.—The LaSalle Paper Company, 855 West Adams street, Chicago, has filed notice of increase in capital from $65,000 to $100,000, for general expansion.

Holyoke, Mass.—The Morart Paper Company, Inc., has been incorporated under state laws with capital of $25,000, to manufacture paper goods. Maurice J. Moriarty has been elected president. Charles H. Barr, 218 Pleasant street, Holyoke, is treasurer and representative.

Elizabeth, N. J.—The General Specialty Company has been formed with a capital of $50,000, to deal in stationery and kindred paper products. The incorporators are Jack Pugach and Philip Rosenblutt. The company is represented by Frank S. Weiner, 80 Broad street, Elizabeth.

New York, N. Y.—Domintiz, Leiber & May, Inc., has been incorporated with a capital of $20,000, to manufacture and deal in stationery products and other paper goods. The company is represented by Cohen & Haas, 302 Broadway, New York, attorneys.

Plattsburg, N. Y.—The Saranac Products, Inc., has been incorporated under state laws with a capital of 300 shares of stock, no par value, to operate a local mill for the production of paper containers, napkins, towels and kindred products. The incorporators are Hans G. P. Norstrand, Plattsburg; John W. Guibord, and Oliver A. Quayle, Jr., 895 Warren street, Albany, N. Y. The company is represented by Dunmore, Ferris & Dewey, First National Bank Building, Utica, N. Y.

Wilmington, Del.—The Pulp Products Corporation, care of the American Guarantee and Trust Company, Wilmington, has been incorporated under state laws with captial of $100,000, to manufacture wood pulp and wood pulp products. It is understood that the company will maintain headquarters at Washington, D. C.

Chicago, Ill.—The American Banknote Company has been incorporated with capital of $40,000, and registered office at 429 South Ashland Boulevard, to manufacture paper goods, and deal in same. The incorporators are W. C. and Robert Schmidt. Representative: Chapman & Parker, 111 West Monroe street, Chicago.

Kalamazoo, Mich.—The Bradford Paper Company, Kalamazoo, operating with a capital stock of $500,000, has filled notice of dissolution under state laws.

New York, N. Y.—The M. & F. Schlosser Paper Corporation has been incorporated with a capital of $250,000, and 100 shares of stock, no par value, to manufacture paper goods, including envelopes, cardboard specialties, etc. It is understood that arrangements will be made for early operation of a plant. The incorporators are M. S. Levin, Fred and Morris Schlosser, 236 Degraw avenue, Jamaica, L. I. The company is represented by D. Goldstein, 1440 Broadway, New York, attorney.

Neenah, Wis.—The Wisconsin Carton Company has been incorporated with a capital of $100,000, to manufacture paper boxes, cartons and other paper goods. The incorporators are Adam C. Schwartzbauer, Alfred J. Danke and James T. Mader, 115 South Mason street, Appleton, Wis. The last noted is representative.

Ypsilanti, Mich.—W. C. Conrad & Son, Inc., has been incorporated with a capital of $20,000, to deal in wall paper, etc. The incorporators are Graeme H. and William C. Conrad, 513 West Cross street, Ypsilanti. The last noted is representative.

Jersey City, N. J.—The Jersey Folder Company, 10 Duncan avenue, has filed notice of organization to manufacture and deal in paper goods and paper equipment specialties. Charles R. Senior is head.

New York, N. Y.—The Paper Utilities Company, Inc., 250 West 57th street, has filed notice of company dissolution under state laws. The Paper Utilities Corporation, an affiliated organization, has taken like action.

Boston, Mass.—The T. C. Greene Paper Company has been incorporated with a capital of $25,000, to manufacture and deal in paper goods, cardboard products, etc. Thomas C. Greene, 10 High street, Boston, is president and treasurer.

Memphis, Tenn.—The Dixie Paper Box Company has been incorporated with a capital of $20,000, to manufacture paper boxes and containers. A local plant will be operated. The incorporators are A. R. Dietrich and O. W. Vaughan, 1444 Jefferson street, Memphis. The last noted is representative.

Norwich, Conn.—The Economy Paper Supply Company has filed a preliminary notice of dissolution. R. S. Stephenson, 555 North Main street, Norwich, will handle claims against the company.

C. J. Lawrence & Bros. Expand

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., August 15, 1927.—C. J. Lawrence & Bros., at Holland, Mich., formerly known as the Lawrence Brothers Paper Box Company, of Chicago, is developing a very large business since its re-incorporation under the laws of Michigan. In addition to a line of paper boxes, it is also making daily a million milk bottle caps. It has a paid up capital of $250,000, with annual sales approximating $500,000.

Will You Spend ONE DOLLAR To Save Three?

That is just what you will be doing if you install a GRILEY-UNKLE IMPROVED EXTRACTOR in your beater room. If you use ground wood, sulphite, sulphate or a product of these materials the Unkle Improved Extractor will increase its capacity from 250% to 300% and will not increase the power expenditure as much as 1%. And—if the beating has been previously done with the roll down the horse power will be reduced. Our machine will produce more fine stock per cubic inch employed in the beater than any other device and the stock we make is ready for the Jordan. IT DOES NOT HAVE TO BE RE-BEATEN.

OUR OFFER

We will gladly install our system to make any tonnage desired in one beater and put it in your mill on a 30 day trial basis. And—this service will be performed at one half the usual cost. Mail the coupon below for further information.

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Gentlemen:

Have one of your engineers show us how one dollar spent will save three. Of course there will be no obligation.

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New York Trade Jottings

D. A. Crocker, secretary of the Salesmen's Association of the Paper Industry, with headquarters at 18 East 41st street, New York, is enjoying a hard earned vacation.

* * *

Don C. Everest, secretary and general manager of the Marathon Paper Mills Company, of Rothschild, Wis., and president of the American Paper and Pulp Association, is visiting New York this week.

* * *

W. G. MacNaughton represented the American Paper and Pulp Association at Washington, D. C., on Monday, August 15, at a Public Hearing called to discuss the proposed standard for Sulphate Wood Turpentine. The hearing was held in the office of the Food, Drug and Insecticide Administration of the United States Department of Agriculture.

* * *

The Sixth National Exposition of Power and Mechanical Engineering will be held at the Grand Central Palace, New York, from December 5 to 10 inclusive, and at the same time as the exposition is held the annual meetings of the American Society of Mechanical Engineers and American Society of Refrigerating Engineers will be held. Numerous other organizations will meet at the same time as the exposition; some of these will meet jointly with, or in bodies attend the exposition.

* * *

Robert Gair, founder and head of the Robert Gair Company, who died July 31, disposed of his estate in a brief will filed recently in the Kings County Surrogate's Court. The amount of the estate has not been determined, but is estimated at more than $2,000,000. His widow receives $5,000 in lieu of dower rights, Mr. Gair having previously made ample provision for his wife. The remainder of the estate is divided equally among the six children—two sons and four daughters. One of the sons, George W. Gair, is president of the Robert Gair Company, and the other, Robert Gair, Jr., is vice-president of the company.

* * *

In an opinion by the United States Customs Court, New York, sustaining a protest of the Kupfer Bros. Company, the tariff rate on certain surface decorated papers is lowered. This paper on entry was appraised as "paper colored in the pulp, not printed on a machine, having an intermingled color design effect." Duty was assessed at the rate of 30 per cent ad valorem under Paragraph 1309 of the act of 1922 as "paper not specially provided for." In a rather lengthy opinion just announced Judge Fischer finds that this paper is more specifically provided for under the specific provision for such papers in Paragraph 1305 of the 1922 law, with duty at the rate of 4½ cents per pound. "There seems," Judge Fischer writes, "to be no dispute as to the exact nature and character of the paper, not even concerning its method of production. In fact, it has been duly stipulated and agreed in writing by and between counsel for the respective parties 'that the design on the paper covered by this protest was produced by means of attachments to the paper machine,' and that such designs 'penetrates the paper from surface to surface.'"

To Be Paper Mill Superintendent at Spruce Falls

Frank Stoughton, who has been tour boss of the Abitibi paper mill since 1921, has moved from Iroquois Falls to Kapuskasing, where he will be superintendent of the new paper mill now in course of construction by Spruce Falls Power & Paper Company, the Canadian subsidiary of Kimberly-Clark Company.

May Reopen Mill at Manchester

MANCHESTER, Conn., August 15, 1927.—Representatives of a Holyoke paper manufacturing company met with the Industrial Committee of the Manchester Chamber of Commerce recently to discuss a proposition by which local people would underwrite $165,000 of a $200,000 project for the purchase of the Oakland Mills of the American Writing Paper Company and their utilization.

It was proposed that the mills, closed last spring as a result of the reorganization of the company be utilized for the manufacture of paper napkins by a new process, invented by William P. McClarkingdale, of Holyoke, who would take $35,000 of the proposed stock issue.

New Mill Starts Running

The new straw board mill of the Hinde and Dauch Paper Company, of Canada, which will have a capacity of 50 tons a day, has been put in operation and the first runs were completed last week. The output of the plant will be used for corrugating purposes of the box factory of the company in Toronto. The industry at Trenton is equipped with 124 inch straight Fourdrinier machine; six, 1,500 beaters; 8-14 rotary straw cookers, steam and electricity, and three 400 h.p. boilers. O. H. Moore is general manager of the plant in Trenton, and for seventeen years has occupied a similar position in connection with the company's operations in Toronto, where jute and chip test container boards, fiber and corrugated boxes and wall board are turned out to the extent of fifty tons daily.

Percy D. Wells Has Big Traveling Record

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 1, 1927.—Percy D. Wells, a paper merchant here, identified with the industry for 35 years, averaged 40,000 miles a year for some 20 years in his travels among the trade and has been in every State in the Union but six. For half a century Mr. Wells' father, W. B. Wells, published a daily newspaper in Michigan. For a number of years Percy Wells was a printer, but started to learn the paper business with the Butler Paper Company, in Chicago, in 1892. Later he was with Alling & Cory, Rochester, N. Y., and subsequently in Boston with the Whitaker interests. For some 10 years Mr. Wells was sales manager for the Tileston & Hollingsworth Company. In 1922 he started in business for himself. He removed a few months ago from Batterymarch street to his present location at 58 Pearl street. Mr. Wells handles all printing papers and employs three salesmen.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 15, 1927.—Applications for membership in the New England Paper Merchants Association are to be acted on at the next meeting, to be held at the Harvard Club of Boston, September 15. Large additions to the membership of the organization will probably be made during the coming years. The work of the association is flourishing.

Work is under way to secure a large delegation from New England to attend the Chicago Convention of the National Paper Trade Association to be held the first week in October. The meeting promises to be an especially interesting one, with some novel features.

Floyd H. Blackman, secretary of D. F. Munroe Company, is at his farm at Chichester, N. H., and H. H. Rutter, manager of the Globe Paper Company, is at Chatham, Mass., for a vacation.

Norman Harrower, of Linton Bros. & Co., Fitchburg, Mass., and president of the Boston Paper Trade Association, was in town last week.

Ex-Governor Rolland H. Spaulding, of the Spaulding Fibre Company, Rochester, N. H., has returned to his home after undergoing a minor operation at the Phillips House of the Massachusetts General Hospital, this city.

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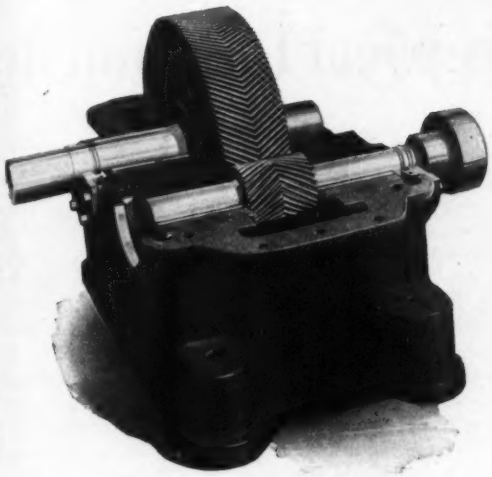

View with Cover Removed Showing Gears

View of Unit Ready for Shipment

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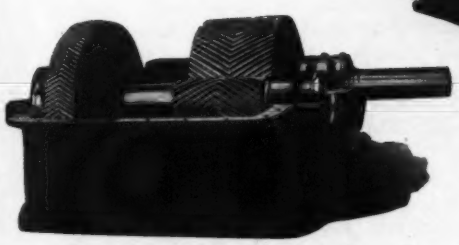
View of Complete Unit



View from Low Speed Side—Cover Removed

View from High Speed Side—Cover Removed

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Power Plant Section

Reducing Power Costs Through Unit Treatment

Conducted by REGINALD TRAUTSCHOLD, Consulting Engineer

Money Earning Value Of Electrical Instruments In Paper Mill And Power Plant

The investment which affords the opportunity of realizing the greatest possible return in the operation of a paper mill is the acquisition of instruments to indicate, record and control the forces liberated in and for the conduct of its activities. From the coal pile or flowing stream to the finished product, the harnessing of energy employed entails constant supervision, else media which should be employed as effectively as possible will escape without serving useful purpose. It is one of nature's inflexible laws that it is the shortest and most direct path to rest that energy will elect.

The control of the operating media in the power plant is in fact the managerial problem of the mill which dominates the all important consideration of profitable mill activity. If each ounce of steam, to concentrate on one important item, is forced to function to the best advantage, the mill will pay. On the other hand, inefficient use of steam portends losses, no matter what the investment may be in power plant and equipment. The elimination of preventable wastes and the curtailment of inefficiencies of all descriptions presages dividends.

So very essential are they, that many kinds of instruments are advisably employed in the paper mill power plant and in the paper mill proper, so that limitation of the present discussion to electrical instruments, only a few of which can be taken up in an article of confined scope, is made for the reason that one highly desirable feature in managerial instrument control is to have the records under the direct eye of the management at all times, and the necessary transmission of these records from where the readings were actually taken to the instrument board in the office is perhaps best performed electrically. This, in spite of the fact that there are highly efficient and essential instruments of the purely physical type.

Instruments for Electric Energy Measurement

The differentiation is rather misleading, however, for by the term electrical instruments is meant all kinds of instruments which employ electric energy in transmitting their readings to the recording panel, as well as those instruments for the measurement of electric energy.

It may be well, consequently, to consider first those instruments for electric energy measurement, ammeters, voltmeters, wattmeters, etc., which are employed to determine accurately the quantities and qualities of the electric energy utilized in production processes. In the field circuit of each generator, an ammeter should be installed and usually a voltmeter as well; in the armature circuit, a voltmeter, ammeter, wattmeter and watthour meter; and in each of the feeder circuits, at least an ammeter and watthour meter. Such a complement of instruments provides the means of determining the total amount of power generated and that supplied to each feeder. Watthour meters at the various stations throughout the mill and at individual machines can also be employed to determine the energy consumption of various processes.

While it may not be essential that all these various instruments be of the recording type, since indicating instruments in convenient locations for ready observation by the operating force will frequently serve, recording instruments on the circular or continuous strip types in the office will present a complete story to the management of current conditions, the starting time, initial inrush and operating current values under variable load conditions of beaters, jordans, etc. For example, a recording ammeter will display the exact running time of machines, at night as well as during the day; give accurate power expense data on the cost of various grades of paper, etc.; show at all times the amount of pressure on adjusting rollers; and detect power leaks and the exact power requirements of machines.

In a certain establishment, a new machine was put into commission which its manufacturers advised could be operated satisfactorily by a 10 horsepower motor. A recording ammeter connected to the motor showed that the machine required, not 10, but 16 horsepower.

Frequency Measurement and Control

The mill depending upon an alternating current supply, such dependence being almost universal at the present time, needs a careful check and regulation of the frequency (cycles) of its various circuits, in order to avoid the undesirable shifting of load incident to poor frequency regulation. This requirement, which is far from being limited to conditions in the paper mill, has brought about the development of a single instrument for both metering and controlling automatically the frequency of an entire electric system.

For such an instrument to find favor in the paper mill, it is essential that it be extremely sensitive, to insure high accuracy in frequency measurement, and at the same time possess the high torque characteristic required to close substantial contacts whenever the frequency departs from normal. Emphasis is placed on these two fundamental requirements, because paper mills are only just beginning to appreciate the importance of frequency control in the efficient and economical use of alternating current.

Location	Electrical Instrument	Investment Entailed	Major Improvements Realized	Estimated Annual Saving	Yearly Return on Investment
.....	4 Bacharach CO_2 Meters	$2,682.53	3½ per cent saving in fuel fired	$2,686.66 gross 2,104.89 net	78.0 per cent
Marathon Paper Company.....	16 Republic Flow Meters	6,400.00	Reduction in steam cost	6,000.00 gross 5,228.38 net	81.6 per cent
Flambeau Paper Company.....	18 Republic Flow Meters	8,000.00	Reduction in fuel expense	6,000.00 gross 5,014.76 net	62.7 per cent

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However, there are a few outstanding examples of installations of such instruments which it might be well to mention. The West Virginia Pulp and Paper Company is employing one of these frequency recorders to good advantage. The instrument operates on a 110-volt system and maintains a normal frequency of 60 cycles. The limiting frequency range is from 58 to 62 cycles. Furthermore, the permanency in frequency, which is a guarantee against energy losses, load shifting and possibly costly operating inefficiencies of a serious character, entailed an investment of only a few hundred dollars. The mill of the St. Croix Paper Company at Woodland, Me., employs a very similar instrument, but one furnished with alarm and control contacts, as a further refinement.

Temperature Measurements in Generators, Transformers and Cables

The latter mill also employs a sensitive generator temperature recorder to safeguard its electrical prime mover. This instrument, and adaptations of it for automatically controlling temperatures of transformers and cable systems, both indicates and records the critical temperature which plays such an important part in determining the load capacity of electric equipment.

While it is perfectly true that the primary cause of the heating up of a generator, for instance, is a question of the load it carries, the actual temperature rise is greatly influenced by the load cycle, the condition of the cooling air and air ducts, the balance and power factor of the load imposed, and upon the dielectric losses in the insulation. In transformers, the continuity of water supply in water-cooled instruments is also an important factor, as is also journal friction in rotating equipment. In cables, while the dielectric losses in the insulation are the chief cause of dangerous elevations in temperature, the load balance, power factor and actual load are contributory influences, as may also be the manner of grouping cables in conduits.

These dangers, the detection of which by ordinary means necessitates continuous watchfulness on the part of the power plant operating force, are discovered instantly by the instrument at the St. Croix mill and recorded on a continuous chart where the instantaneous readings by the thermocouple or resistance coil can be shown from one or a dozen or more distinct locations at the same time. The particular instrument at the St. Croix mill records the temperature from eight critical points on the machine over which it exercises such effective supervision.

An instrument of this character, capable of recording continuously the temperatures at sixteen different points, with a remote index and lamp signal board, is listed at less than a thousand dollars. One burnout prevented in a generator of any size, transformer, important bearing or in the cable ducts would probably liquidate such investment in short order.

Pyrometer Instruments

In the paper mill proper, a thermal instrument known as a surface pyrometer is also proving highly effective in money saving characteristics, by providing a sensitive and quick method of determining the surface temperatures of steam heated dryers and the prompt location of any water-logged dryer which may be retarding production or affecting quality of output. It consists essentially of a sensitive thermocouple mounted on a convenient support, its ends connected to a millivoltmeter with a dial reading in temperature units, is entirely self-contained and need be simply pressed against the dryer surface to record instantly its surface temperature. This may be done without stopping the dryer.

Where the cost of steam is such an important item as it usually is in the paper mill, the knowledge of surface temperatures so readily acquired is exceedingly valuable, particularly when progressive drying is resorted to and the sensitive control of steam supply is essential. The temperature range for the standard surface pyrometer is from 50 to 400 degrees Fahrenheit, quite sufficient for any usual requirements encountered in the paper mill.

A more familiar use for pyrometers in the paper mill power plant is, however, in connection with the measurement of flue gas temperatures, the regulation of which is such an important factor in the efficient operation of the boiler plant. In such service, the pyrometer records would constitute the major heat loss in boiler plant operation, i. e., the escape of heat in dry chimney gases. This may be from 12 to 40 per cent or more of the total heat generated in the furnace.

It is impossible, of course, to circumvent these losses entirely, even through the installation of efficient economizers, but it is quite possible to minimize the waste sharply when the condition is shown to exist, as it can be by a recording pyrometer. The waste is due in very large proportion to two fundamental causes, either and both of which are indicated by unnecessarily high flue gas temperature. Excess air supply is one of the causes and the other may be referred to by the elastic term of "improper boiler and furnace maintenance."

Excess air, as is not always appreciated, materially elevates the temperature of the flue gases, although it also substantially reduces the furnace temperature. An increase in flue gas temperature of 12 or 13 degrees Fahrenheit entails an increased fuel consumption, to maintain steam pressure, of approximately 1 per cent. A difference in excess air supply of from 40 to 80 per cent., 50 per cent, excess air represents fairly efficient furnace operation and several times such quantity of excess air is not at all uncommon in the carelessly operated plant, means a good 3 per cent. wastage in fuel consumption.

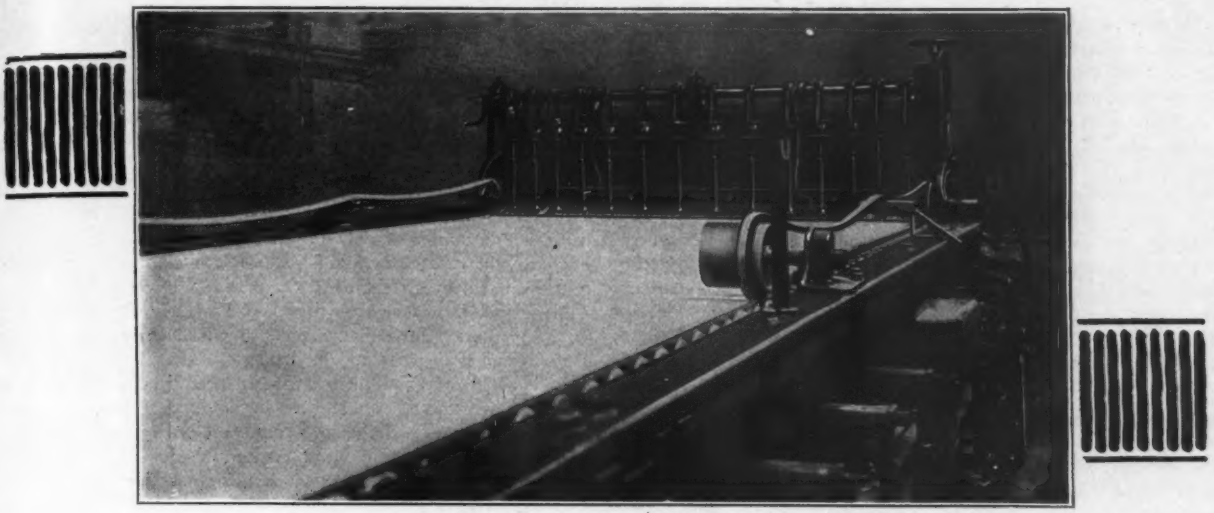
Improper maintenance, evidenced by the gas side of the boiler tubes being covered with soot, the water side encrusted with scale or by defective baffles, etc., which allow the hot gases to avoid their proper path across the boiler tubes and take a more direct path to the stack, is responsible for the greater proportion of the balance of the very considerable heat loss in the flue gases. It is obvious that this cause will also elevate the temperature of the escaping gases, for not only do the deposits on the boiler tubes insulate against heat transmission to the boiler contents, but the gases escape to the stack while they are still excessively hot.

Since the two chief causes of flue gas heat losses are indicated by elevation in the temperature of the products of combustion passing up the stack, which can be readily and sensitively indicated and recorded by the thermocouple type of pyrometer, it is extremely fortunate that the causes can be dependently differentiated between by the continuous type of curve drawing pyrometer. An increased temperature due to excess air supply will be established quickly, while if the cause is that of improper maintenance the temperature rise will be slow and much more gradual. In this way, the recording pyrometer for flue gas temperature ably discharges its function of diagnosing trouble and enables the proper remedy to be instigated with assurance of effecting desirable savings in fuel consumption.

It is not at all infrequent to effect a saving of between 10 and 15 per cent in fuel consumption by virtue of the knowledge of furnace conditions supplied by pyrometers of this type. Instruments for recording flue gas temperatures from eight points, from different boilers is desired, with a remote index and a lamp signal board entails an investment of a few hundred dollars only, while a 15, 10, 5 or less per cent economy in fuel consumption effects an annual saving of very much more.

Electric CO_2 and CO Meters

Another and perhaps more familiar method of ascertaining furnace conditions is by means of electric CO_2 and CO meters, since the measurement of these constituents of the flue gases strikes a familiar cord with the old time investigators who had to rely upon a rough chemical analysis of the products of combustion for their information. The principle of the CO_2 meter, to distinguish it from the older type of CO_2 recorder, is very different, of course, being based upon the fact that the heat conductivities of the various gases comprising the products of combustion are very different and quite distinctive.



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A given electric current passed through a slender wire encased in a metal container surrounded by the hot flue gases will heat the wire filament to a temperature slightly in excess of that of the surrounding gases, the exact temperature depending upon the heat conductivity of the gas and will be somewhat higher the lower this conductivity may be. The wire temperature can be accurately determined by measuring its electrical resistance, so establishing the proportion of CO_2 content. This, in brief, is the principle on which the electric CO_2 meter functions, a complete instrument consisting of such a tester, containing the measuring wires where the actual testing of the gas takes place, an indicator to guide the furnace tender, by registering the percentage of CO_2 content present at any instant, and a recorder situated in the superintendent's office or other convenient location, where a continuous graph of furnace conditions is maintained.

In one establishment, operating four boilers aggregating 2,000 boiler horsepower in regular service, where combustion conditions are typical of those encountered in the vast majority of paper mill power plants, the installation of these electric CO_2 meters effected an annual saving in fuel fired of 3½ per cent—$2,686.66 gross, in monetary units. The CO_2 content of the flue gases, which previously had rarely been higher than about 9.5 per cent, was increased to 13 or 15 per cent. Counting all fixed and operating charges and making due allowance for depreciation, the four instruments cost $581.77 a year to operate, so a net annual saving of $2,104.89 is realized. This is at the rate of 78 per cent of the total investment entailed.

Since an unusually high CO_2 content may, nearly always does, indicate a deficiency in air supply and the presence of CO,—partially burned carbon, the formation of which develops less than a third of the total combustion heat of carbon, a quite similar electric instrument, though one operating on an entirely different principle, has been developed to determine the CO content of flue gases. Obviously, where CO may be present in excessive proportions, this instrument is also a very profitable one to install.

Reduction in Steam Consumption

In the curtailment of steam wastage, instruments of the flow meter variety are effecting very material savings in many instances. The general superintendent of one of the more prominent mills states that he has never known an instance where the installation of flow meters has not brought about a reduction in steam consumption of at least 10 per cent and in many instances savings up to 30 per cent in steam consumption have been realized on the digesters, the blowing off of which frequently entails great steam wastage. In cooking practice, he contends that such instruments do more than record the flow of steam, for they are influential in devising better cooking methods and are quite important factors in improving the quality of stock.

Also, the steam flow meter frequently detects extravagances in the use of steam which can be arrested by the substitution of other power media. For example, a saw at the Hoburg Paper and Fibre Company, Green Bay, Wisconsin, was found to consume steam to the extent of 150 boiler horsepower under normal operating conditions. An electric drive was substituted with the result that the saw functioned satisfactorily without unduly overloading a 10 horsepower motor.

Likewise, the flow meter will focus attention on carelessness and the wasteful practices into which it is so easy to draft unless constant supervision is exercised. Enlargement of steam jets through corrosion, a jet carelessly left open or an accumulation of apparently insignificant leaks will promptly be made apparent by stimulation in steam flow.

At the Marathon Paper Company, Rothschild, Wis., sixteen flow meters are installed which are reputed to have effected in one year a saving of at least $6,000, and this in one item alone. The installation entailed an investment of some $6,400.00, so the first year's savings, which in the aggregate were substantially more than the sum mentioned for the one item, liquidated the entire outlay. The $6,000 saving was realized through the detective ability of the meters. It was discovered that the exhaust steam from a large engine employed would suffice for the bleaching machines which had previously been fed with live steam. The annual cost of operating the sixteen flow meters, including depreciation, interest on investment, repair and suitable maintenance allowances, power expense, labor charges and even such trivial expenses as that entailed for the chart blanks employed, amounts to $771.62, a matter of only 13 cents a day per meter. Considering only the annual saving of $6,000, this means a net annual return on the investment of better than 81.6 per cent.

An installation of eighteen flow meters at the Flambeau Paper Company, Park Falls, Wis., virtually duplicated this record. Their use was and is instrumental in cutting the annual fuel bill of the plant some $6,000, and their ability to determine accurate steam costs avoided the investment in an additional 300 horsepower boiler to meet the load demands somewhat in excess of the quantity of the capacity of the power house. In addition, they effected other economies by increasing the efficiency of the plant.

The excess power required, with a certain reserve, was secured from a 240-kilowatt hydro-electric generator which happened to be available. This substitution for the additional 300 horsepower boiler which otherwise would have been necessary has proved a decided economy and though the saving realized can scarcely be attributed to the operation of these instruments, it is a fact that the installation of the flow meters was partly instrumental, at least, in avoiding for the time being the necessity of investing in additional boiler capacity.

The eighteen flow meters installed cost approximately $8,000 and the annual cost of these operations, taking into consideration all major and minor expenses involved, is a matter of $985.24—15 cents a day per meter. Taking into account only the $6,000 saving per year in fuel, the meters return 62.7 per cent of the investment their installation entailed each year.

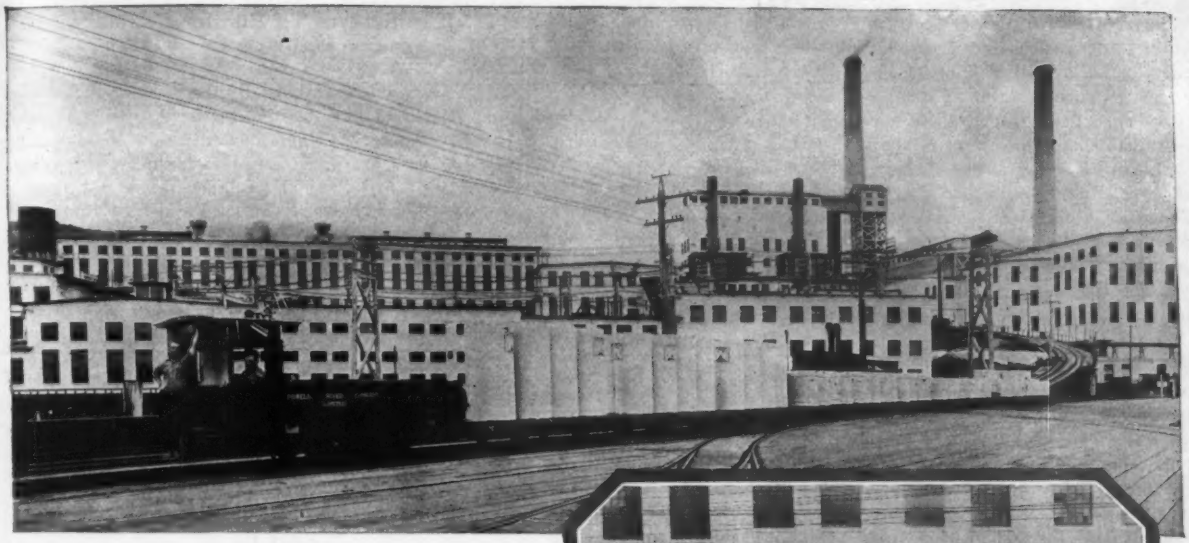
At both the Marathon Paper and the Flambeau Paper establishments, the cost of steam represents from 40 to 50 per cent of the total cost of production. A saving of $6,000 a year, consequently, is no inconsiderable item. It means, substantially a reduction of about 9 cents a ton on the cost of sulphite fiber produced.

Improvements Realized Through the Use of Electric Tachometers

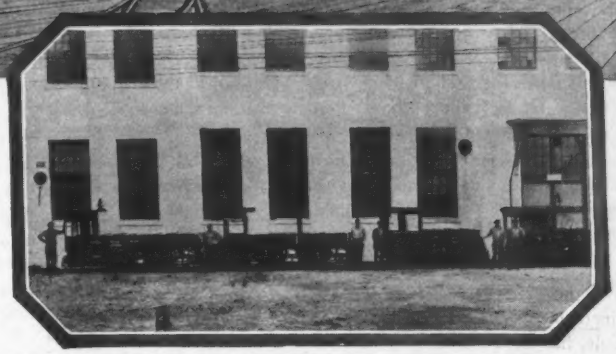
Another variety of instruments which is finding much favor in paper mills and their power plants is the electric tachometer, either of the indicating or the recording types. These counting devices are employed for the purposes of indicating and recording paper machine speeds, calender rotations, revolutions of pumps, turbines, motors, etc., and for similar installations.

The indicating instrument consists essentially of a direct current generator and a direct current voltmeter which reads directly in feet per minute, revolutions per minute or other convenient units. The recording instrument which traces a graph on a clock driven chart, the meter containing which can be mounted wherever desired, consists of an electrically operated chronometer mechanism which counts the actual feet or yards of paper produced or gallons of liquid pumped, and records speed fluctuations and idle periods of the machine to which it is connected.

The use of these instruments on high speed machines provides probably the most effective and accurate means of determining the important factor of speed and even on slow speed machines, the direct reading instrument is much more dependable than counting the revolutions with an ordinary speed indicator. Speed fluctuations are readily noted, permitting the prompt adjustments which insure uniformity in quality and production of machine output. Where speed records are on hand, a product can be duplicated with the greatest ease and production schedules maintained.



B-W. Locomotive Hauling a Load of Paper from the Powell River Company's plant to the dock.



The four Baldwin-Westinghouse electric locomotives owned by the Powell River Company, Limited, Powell River, B. C.

These Locomotives

are "News Boys" to the world

FOUR Baldwin-Westinghouse electric locomotives, owned by the Powell River Company, deliver the huge output of news print paper manufactured in the mills to the docks for shipment throughout the world. . . . This company started with one Baldwin-Westinghouse locomotive and found it so successful for handling the heavy rolls of news print that they have purchased a total of four. . . . A complete system of tracks runs to all parts of the dock—outgoing news print and incoming raw material are quickly and cheaply handled. . . Every plant presents its own transportation problems. Westinghouse engineers are available to make a special study of your needs.

The Baldwin Locomotive Works
Philadelphia, Pennsylvania

Westinghouse Electric & Mfg. Company
East Pittsburgh Pennsylvania

Baldwin–Westinghouse

X54914

Where records of machine speeds and breaks are kept continucusly, friendly rivalry between the various shifts is almost certain to develop, each shift striving to equal or surpass the record of the most productive shift. If there are several machines working on the same grade paper, these speed and output records also serve to stimulate the various crews in striving for the best group record. In mills specializing in the production of fine grades of paper, recording instruments showing machine speeds will tend, under good management, to prevent the excessive speeding up of a machine in an attempt to secure output for the shift despite previous interruptions or unavoidable delays.

The instruments are not expensive, an indicating tachometer with its driving gears, cables, etc. and one indicator can be purchased for a couple of hundred dollars and each additional indicator will add from 30 to 40 per cent to the price. A complete electric recording tachometer for a single machine will cost about twice as much as a simple indicating tachometer with one dial. A more elaborate installation will naturally run into more money, but the mills which have installed systems of this kind, such as the Ruberoid Company at Bound Brook, N. J., find that the facts that the management secures a complete and reliable record of the performance of each machine and that each foreman has an opportunity to see what other foremen are accomplishing well justify the investment in the equipment.

These results secured through the use of electrical instruments in the paper mill and power plant, many of which are of such intangible character as to defy valuation in dollars and cents without exhaustive investigations, and others which really demonstate an almost sensational saving, typify the money earning value of such instruments, where their use is really called for. It has been said that a quite mediocre mill, so far as equipment and power house facilities are concerned, may be made quite profitable by skillful instrument control and direction, while an establishment favored with a full complement of approved and modern equipment and apparently situated under very favorable conditions. but without the service of such instruments, may contract losses and wastes which defy ordinary methods of detection and prove to be operable only at a loss. Be this as it may, it is certain that suitable instruments prove well nigh indispensable in the skillful and economical management of a paper mill. Their proper use is, in fact, a managerial responsibility.

Instrument control, wherever feasible, is cheap, efficient and invariably profitable. No mill, large or small, can afford to disregard it any more than it should be possible to ignore the substitution of approved machinery for manual labor. What progress has accomplished toward the electrifying of industry, is being duplicated in a measure in the managerial field through the adoption of instrument direction.

D. G. Wilson Box Co. Starts at Longview

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., August 12, 1927.—The D. G. Wilson Box Company has been established in Longview, Wash., by D. G. Wilson of Spokane. The company manufactures egg crate fillers from the spruce pulp of the Pacific Straw Paper and Board Company of Longview. They expect to start at first with only one carload of fillers a week, increasing manufacture as necessary.

G. F. Steel Visits Coast Mills

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., August 12, 1927.—Bert N. Hones, business manager of the Fort Worth *Star-Telegram*, Fort Worth, Texas, and G. F. Steel, New York City, sales representative of the Powell River Paper Mills, were entertained in Portland early in August at the Crown-Willamette Paper Mills on their way to visit Canadian plants.

M. J. Burns Not To Run for Secretary

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., August 15, 1927.—An interesting and unexpected development in International Brotherhood of Papermakers' politics came this week with the announcement from headquarters that Matthew J. Burns, who has filled the position as secretary for the past six years, has declined to be a candidate for reelection

Arthur Huggins, of Holyoke, Mass., now second vice president of the Brotherhood, and widely known throughout the industry for his organization activities, is to succeed Mr. Smith on the administration ballots. His election to the position of secretary is said to be absolutely assured as it is claimed he has no opposition in either the United States or Canada. He has been in charge of the Canadian office of the Brotherhood at Three Rivers, Quebec, since its establishment.

It developed this week that Secretary Burns had absolutely declined to seek re-election and had sanctioned Mr. Huggins soliciting the support of local unions. Mr. Burns is said to feel that it would be for his best interests to seek other lines of work which would be more profitable to him. The Brotherhood membership some time ago voted down a resolution adopted at the last convention increasing the salary of the secretary from three thousand to four thousand dollars yearly.

Mr. Burns in 1920 was selected by former President Jeremiah T. Carey to be an organizer and later was elected to serve as secretary.

Arthur Huggins before becoming officially connected with the Brotherhood was a beater engineer and saw service in a number of mills in the Mississippi and Miami Valleys. He will remove from Holyoke where he now resides to Albany, it is said, in time to assume the duties of secretary January 1, when Mr. Burns relinquishes the position.

Nominating petitions are still being received at headquarters but there are still a number of local unions to be heard from. It is rumored that there is considerable opposition to President W. R. Smith, now head of the organization as well as certain other administration candidates. Indications are that the coming elections will be hotly contested for some offices.

Frank G. West Dead

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 12, 1927.—Frank G. West, who for the past thirty-four years had been in the employ of Ritchie and Ramsay, coated paper manufacturers, Toronto, passed away on August 9. For a long period he was assistant superintendent of the plant and, on the death of J. J. Moriarty a few months ago, he was promoted to be superintendent. Mr. West had not been in good health for some time and was 57 years of age. His loss is keenly felt by the members of the firm and by all its employees, by whom he was highly respected. Mr. West who was born in Toronto, had lived in the city all his life. He is survived by one sister, residing in Toronto, and one brother, R. T. West, of Louisville, Ky., who attended the funeral, at which a large number of paper men were present.

Install Refrigerating Plant at Rhinelander

RHINELANDER, Wis., August 15, 1927,—To assist in keeping the gas blowing through the cooler pipes at a low temperature during the hot summer months, the Rhinelander Paper Company, has installed a fifty ton York refrigerating machine. This will make possible a cooking acid of even strength throughout the year, thereby insuring a uniformity in the strength of the sulphite produced in the summer months equal to the pulp manufactured during those cooler months when conditions are more favorable for acid making.

This is one of the first refrigerating plants of this kind to be placed in any sulphite mill and should be of great service at a time when it is extremely difficult to get good results in producing a high grade pulp due to weak cooking acid.

So One Thought May Survive

IN a lifetime of painstaking, eye-tiring effort, the medieval monk made a few copies of some precious book whose ideas must be passed on to posterity. Hundreds of things that might now seem to be worth knowing were discarded into an unrecoverable oblivion because the book maker had to limit his copying to the few things he chose as most important.

Today our literature is multiplied, not a letter at a time, but by the carload. Most that is printed is of fleeting value—much indeed, valueless. But among the tons of printing there are passed on, to all who wish to know, the worth-while ideas of the human race, those ideas that may seem of passing moment today only to be judged important by the next generation.

The censorship imposed by lack of paper long held back literature, restricted its quantity, limited its universality. Generous amounts of paper have made possible the presses that imprison the ephemeral thought that some future generation may release for the broad benefit of mankind.

Hammermill Paper Company

Erie, Pennsylvania

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IMPROVING STATISTICS FOR PAPER

A proposed new form for the compilation of census data for converted paper products has been submitted to the American Paper and Pulp Association by the Department of Commerce, which, it is believed, will be very helpful in bringing about an improvement in statistics for the paper industry.

The Committee on Statistical Procedure for the Paper Industry, of which Mr. C. B. Morgan, treasurer of the S. D. Warren Company, Boston, is chairman, and Mr. Paul S. Hanway, statistician of the American Paper and Pulp Association, is secretary, has met several times and a tentative schedule was submitted to Washington. On July 30, Mr. M. C. Dobrow, assistant secretary of the Writing Paper Manufacturers Association, and Mr. Hanway met with Messrs. Matthews, Daly, Rolle, Meese and Schnitman, of the Department of Commerce, to discuss changes in the Paper and Wood Pulp Schedules for 1927.

Practically all the recommendations of the committee were adopted.

Since then, the Department has shown its entire willingness to cooperate with the paper industry by offering a separate schedule of converted paper products to include about forty items of major importance selected on a basis of the annual value of the product.

The value of such a schedule in determining distribution of primary production of paper cannot be over estimated.

It not only will show the tonnage of paper going into conversion, but will help to simplify the study of body stock distribution by grades. At the same time, the data will ultimately help to predetermine trends of consumption for certain grades of wood pulp.

In addition to this schedule, the Census Bureau has under consideration an annual abbreviated census of production, shipments, capacity, etc., for paper and for wood pulp.

Such schedules would obviate the present necessity for waiting two years for a report which when issued is more than a year old and its value reduced to a matter of record.

The changes which the statistical committee recommended and which were pressed by Mr. Dobrow and Mr. Hanway were considered as essential in use for research by the paper industry.

To date, there has been a mass of generalization which made a tie-up for specific use rather difficult.

Certain of the affiliated associations as well as the American Paper and Pulp Association have been endeavoring to collect statistics in more detail and promptness so that lines of research beneficial to the industry could be undertaken.

Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, has offered the cooperation of the Association and its staff to the industry and to all Associations touching the paper industry in any way. Many associations have taken advantage of this offer and as a result, the American Paper and Pulp Association is fulfilling an obligation in establishing closer and more helpful contacts with its members and the affiliated associations.

BIG PLANS FOR SAFETY CONGRESS

How to make America a safer country will be discussed by more than 300 speakers, who will address ninety different sessions of the Sixteenth Annual Safety Congress, which will be held at the new Stevens Hotel, Chicago, September 26-30. Men and women from various cities will tell their experiences in the prevention of accidents on the streets and highways, in other public places, at home, throughout industry, on the sea and in the air. Fire prevention specialists will show how the toll taken by flames can be reduced, and medical authorities will explain what steps are necessary for the conservation of industrialists' health, dwelling on keeping both executives and laborers fit for their tasks. In addition, there will be an exhibit of commercial safety appliances and mechanical devices. There will be no charge for admission and both members and non-members of the National Safety Council will be welcome to attend all of the meetings. More than 5,000 persons are expected to participate.

How members of the Paper and Pulp Section of the National Safety Council have made such fine records during the past year will be explained at the convention. The sessions of the Paper and Pulp Section will be held on Tuesday and Wednesday, September 27-28. W. J. Peacock, of the Northern Paper Mills, will call for reports of officers and committeemen, after which there will be addresses by Alvin F. Record, of the International Paper Company, on "Accident Analyses and Costs"'; B. B. Rogers, of Bird & Son, East Walpole, Mass., on "Plant Inspection and Safety Committees," and C. K. Boyer, of the Interlake Pulp and Paper Company, on "Standard Guarding and the Code." On Wednesday morning the presiding officer will be M. G. Hoyman, of the Kimberly-Clark Company. After the election of officers there will be a symposium on "Selling Safety in Paper Mills," in which R. S. Turner, of the West Virginia Pulp and Paper Company, W. E. Walker, of the Kalamazoo Parchment Company, and J. H. Slater, of the Escanaba Paper Company, will participate. D. C. Everest, president of the American Paper and Pulp Association, will tell "Why Safety Is Worth While."

The accident situation in the chemical industry will be dwelt on by C. F. Whittemore, of the Western Electric Company, on Tuesday morning, September 27. Dr. J. W. Stillman, of E. I. duPont de Nemours & Co., will dwell on the "Prevention of Accidents in Chemical Laboratories," and A. A. Backhaus, of the U. S. Industrial Alcohol Company, will point to the "Dangers from Static Electricity in the Handling of Solvents."

At the Wednesday morning session of the Chemical Section, J. M. Rowland, of the Hooker Electrochemical Company, will discuss "The Safe Preparation of Tanks and Other Chemical Apparatus for Repair and Inspection." K. W. Cosgrove, M. D., of the

Henry Ford Hospital, will talk about "The Initial Treatment of Chemical Eye Burns." Prof. C. E. A. Winslow, of Yale University, will present a "Summary of the Results of the National Safety Council's Spray Coating Study."

On Thursday morning, there will be a general discussion of chemical plant safety from the standpoint of the plant management by A. B. Nixon, of the Hercules Powder Company, the insurance carrier, by E. C. Jacobs, of the American Mutual Liability Insurance Company, and the medical department, by P. H. Hourigan, M. D., of the Larkin Company.

Organized accident prevention efforts have conserved the lives of 122,764 men, women and children since 1913, according to estimates made by the National Safety Council. If the deaths from automobile accidents were not considered, a saving of 284,296 would be shown as a result of the perpetual campaign of safety in industrial establishments, residences and public places. These figures are based on the rate of accidental deaths in 1913, considered a normal peace time year and the average rate of ten years prior to 1913.

From 1913 to 1926, inclusive, accidents have caused the deaths of approximately 1,146,428 persons. If accidents during those years had continued to occur at the 1913 rate, 1,269,192 people would have been killed. During that period, 160,732 men, women and children were killed by automobiles alone, which is 102,889 more victims than there would have been if the 1913 rate had been maintained ever since.

Beginning about 1913 many organizations became actively engaged in organized safety work. While the U. S. Steel Corporation and the International Harvester Company and some other industries were engaged in such activities prior to then it was not until 1913, when the National Safety Council was organized, that industrial leaders generally began to appreciate that accidents didn't just happen but were caused and could be prevented.

International Paper Shows Big Gain in Net

The consolidatel account of the International Paper Company tor the first half of 1927 shows total revenue of $7,071,551, net revenue available for dividends of $2,407,253, and a balance of $176,119 after dividends added to surplus. This compares with a gross of $4,431,662, a net of $1,277,216, and a surplus deficit of $71,893 in the same period of 1926.

The gross revenue for the June quarter was $3,896,971, against $2,643,857 in the second quarter of 1926, and net income after interest, depreciation, amortization and Federal taxes of $1,413,029, against $1,015,507 the year before. The surplus, June 30, 1927, was $22.463,949, against $21,854,114 at the end of June, 1926.

The dividend charges shown for the second quarter of 1927, amounting to $1,397,453, represent the accrual during that quarter of the dividends payable in the third quarter. As a large amount of additional preferred and common stock was issued late in the second quarter, the dividends payable in the third quarter and accrued during the second quarter exceeded the dividends actually paid during the second quarter by $563,773. Dividend charges were $799,593 in the second quarter of 1926.

Receiver for National Coated Paper Corp.

PAWTUCKET, R. I., August 15, 1927.—Upon petition of a creditor, the William K. Toole Company of Pawtucket, Arthur A. Thomas was appointed temporary receiver for the National Coated Paper Corporation, in a decree filed in Superior Court last week before Judge Charles A Walsh. The receiver's surety is set at $25,000 in the decree. Huddy and Moulton appeared as counsel.

Consolidated First 5½s Well Secured

Looking over the list of recent new bond flotations the first mortgage Series A gold 5½s sold by the Consolidated Water Power and Paper Company appear attractive on the basis of security and the rate of return offered, says the Financial Editor of the New York *Evening Post.*

These bonds, which run for twenty years, carry a coupon of 5½ per cent and are priced to yield 5.75 per cent. They are secured by a first mortgage on virtually all the real estate, plant and equipment owned by the parent company, valued at more than $5,000,000 after liberal depreciation, and further by the pledge virtually of all the outstanding stocks and bonds of its subsidiaries, whose properties have a combined book value of more than $5,700,000.

The issuing company is among the largest producers of news print, wall paper and high-grade sulphite fiber in this country. Four mills owned and operated in Wisconsin have a combined capacity of 400 tons daily of which some 300 tons is in news print.

One of its wholly owned subsidiaries, the consolidated Water Power Company, operates three hydro-electric plants in Wisconsin with combined installed capacity of 35,000 horse power, with the necessary transmission lines, etc., to carry current generated to its mills and almost 3,000 private meters in the town of Wisconsin Rapids.

The Thunder Bay Paper Company, which, like the aforementioned, is a wholly owned subsidiary, having been acquired last year, owns and operates a news print plant at Port Arthur, Ont. The capacity of this project is being brought up from 125 tons of news print daily to 250 tons.

Through ownership in fee or long-term grants the company and its subsidiaries hold the rights to around 6,000,000 cords of good quality timber which can be hauled to the various mills within reasonable costs.

Upon giving effect to this piece of financing these bonds will constitute the only outstanding funded debt of the company and its subsidiaries with the exception of a $2,000,000 issue of Consolidated Water Power first mortgage 5½ per cent bonds.

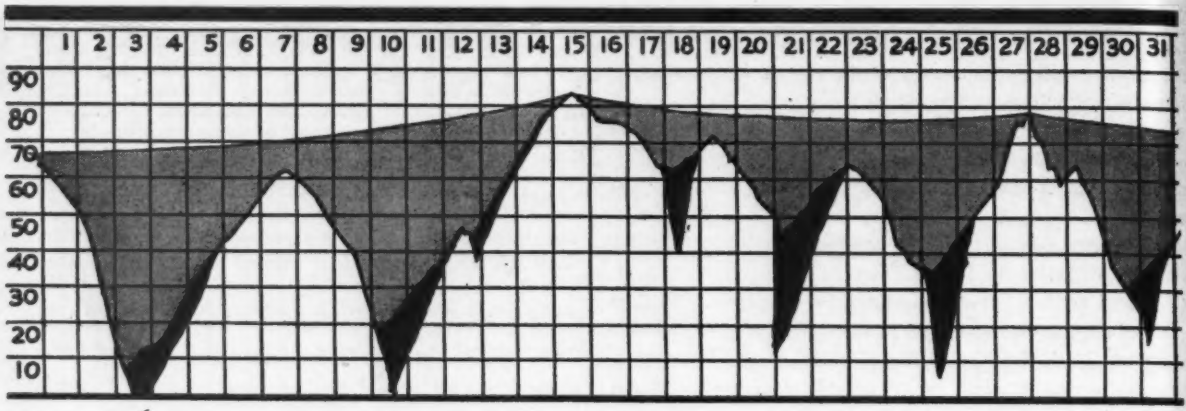
A semi-annual sinking fund is provided for, starting April 30, next year, which will be sufficient to retire upward of 75 per cent of the principal amount of the new issue to maturity. The average of annual earnings for the five years and four months to April 30 last, after depreciation, depletion, etc., was equivalent to three times annual interest requirements, and in the first four months of the current year were at a rate equivalent to approximately four times such requirements.

Big Merger Reported on Pacific Coast

Dispatches in the daily press state that the National Paper Products Company, a subsidiary of the Zellerbach Paper Company and the Paraffine Companies, Inc., San Francisco, announced today an arrangement to merge its competing pulp and paper board departments into a new corporation to be chartered in Delaware. The companies will transfer book assets of about $14,000,000, including more than twenty Pacific Coast plants. The new company will be under the presidency of J. D. Zellerbach, president of National Paper Products Company, and the general managership of H. D. Patterson, who has been head of the Paraffine, pulp and paper box divisions.

Rhinelander Paper Co. Installs Digester

RHINLANDER, Wis., August 15, 1927.—The Rhinelander Paper Company, has greatly enlarged its sulphite mill by the addition of a fifteen ton digester. The work of erection is being done by the Manitowoc Engineering Works, Manitowoc, Wis., from whom the digester was purchased. It will be ready for operation in two months, and it is expected to take care of the lately increased demands made on the sulphite department.



Eliminate the "Valleys" in Production Quality

Rosin Size and Service

KALBFLEISCH CHEMICALS for PAPER

OFTEN a chart of paper production—from a quality standpoint—would disclose unprofitable dips or "valleys".

In many cases this descent from high standards of production may be traced to the size and the manner in which sizing operations are conducted.

The use of Kalbfleisch Rosin Size and System may be depended upon to maintain sizing results at a profitable level. Kalbfleisch Rosin Size has established an enviable reputation for cleanliness and uniformity; and the helpfulness of the De Cew Sizing System, installed and supervised by Kalbfleisch engineers, likewise is established.

We sincerely believe that it is to your advantage to investigate the possibilities of Kalbfleisch Chemicals and Service for your production. Ask us to give you the facts.

The KALBFLEISCH *Corporation*

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Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W.G. MacNAUGHTON, Secretary

Ailanthus Wood As a Paper Making Material*

Tests Carried Out at the French School of Paper Making

By L. Vidal and M. Aribert

The tests were carried out on young trees, which are most suitable for papermaking as the wood is still soft and but slightly colored. Only trees about 10 to 12 centimeters in diameter were used, on which could be counted some 15 annual growth-rings. Two lots of wood were tested: one from Ardèche, which had grown on a silicious soil, and the other from Drôme, which had grown on a calcareous soil.

Structure of the Wood

The woods were barely yellowish, almost white, and contained practically no heartwood; they did not have the greenish yellow tint which is characteristic of older wood. It has a fine, regular, fairly dense grain, and a specific gravity of about 0.6. In each annual ring the springwood shows up as a narrow, very porous ring, consisting of large vessels, easily visible with the naked eye, while the summerwood consists of fibers, mixed with a few much smaller vessels. There is an appreciable difference in color between the autumnwood, which is yellowish, and the summerwood which is whiter.

The samples were seasoned and cut into thin pieces with a draw-knife. Analysis showed the samples to contain 9 per cent moisture, which was naturally taken into account when calculating the yields. The Ardèche sample contained 50 per cent cellulose, determined by Cross and Bevan's chlorination method, and the Drôme sample 48.5 per cent; the ash contents were 0.72 and 0.75 per cent, respectively. The water extract, containing the gums and other soluble constituents of the wood, was about 4 per cent; the alcohol extract was 1 per cent, and the ether extract 0.8 per cent. the two latter containing the oils and resins present in the wood.

It is quite evident that this wood is too hard to be made into groundwood, so we contented ourselves with making chemical pulping tests. Moreover, as the samples available were not sufficient to make a run on the papermachine, we had to be content with making hand-sheets from the pulp we obtained.

Alkaline Process Used

Owing to the nature of the wood, the alkaline process is the only one suitable for the treatment of this species. We made several caustic soda cooks in a stationary, experimental digester, with indirect heating. Disregarding those cooks which gave negative results, we shall mention the two following ones, which gave a usable pulp.

A mild cook was obtained with

Caustic soda	25 per cent
Concentration of the liquor	12° Baumé
Pressure	3 kilos
Time of cooking	8 hours

After removing from the autoclave, the pulp was washed and defibered in a small experimental beater. It was hard, and could be defibered with difficulty. It was of a reddish, wine-less color. The yield of unbleached pulp was 50 per cent.

This unbleached pulp could be used as such for wrapping papers or for boards. It could perhaps be bleached, but with great difficulty, and even then not perfectly. Using as much as 30 per cent of bleaching powder gives only a rather poor, cream-colored pulp.

A bleachable pulp can be produced by cooking more severely, as follows:

Caustic soda	30 per cent
Concentration of the liquor	15° Baumé
Pressure	3 kilos
Time of cooking	8 hours

The resultant product is much softer and can be defibered without trouble; but it still has a reddish color. The yield is only 46 per cent, or 4 per cent less than under the milder treatment.

The pulp was bleached cold, without addition of acid, and a good white was obtained with a consumption of 23 per cent of bleaching powder. The yield of bleached pulp could not be determined accurately because the fibers are so small that some of them pass through even very fine sieves (we used a 70-mesh sieve), resulting in quite appreciable losses. We obtained a yield of 40 per cent, but publish this figure with all due reserve, as we consider that it must be low.

No difference could be observed in the ease of treatment of the Ardèche sample and the Drôme sample.

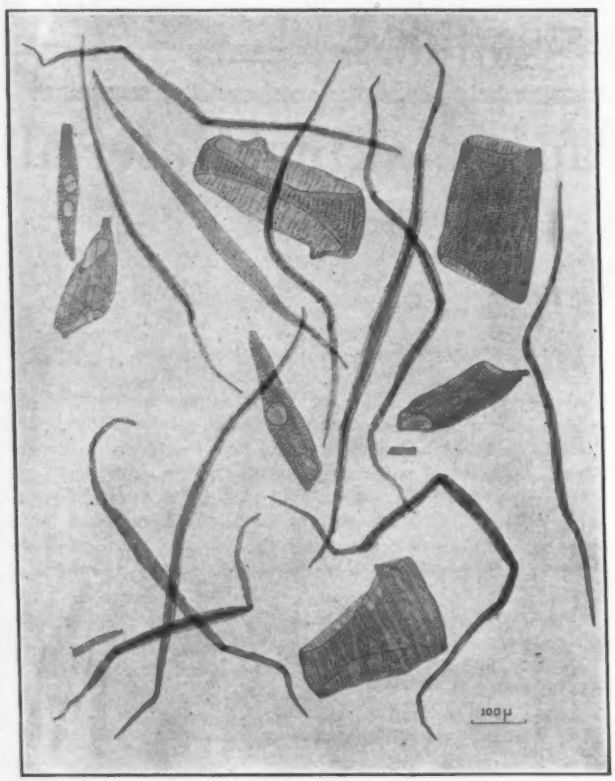
Microscopic Examination of the Fibers

Under the microscope, ailanthus pulp is seen to consist of short fibers, which is its outstanding characteristic. The fiber-length varies from 0.5 to 1.0 millimeter, averaging 0.8 millimeter. They are prismatic in shape, somewhat flattened, and with thick wall having only fine, slit-like pits. The lumen is quite wide, and broadens out considerably towards the center of the fiber, which swells out at this point. They vary in width from 0.020 to 0.030 millimeter, being about 0.025 millimeter on the average. The ends taper rather sharply and are not bifurcated. As regards the shape and the thickness of the fiber wall, there is no sharp distinction between summer and autumn fibers. On ac-

* Translated from Le Papier xxx, 183-186, February, 1927, by A. Papineau-Couture.

count of their shortness and also of the ratio of their length to their diameter, these fibers have a very indifferent felting power.

The vessels are not very numerous, much less so than in poplar or birch, for example, and they exhibit considerable variation in size. The spring vessels are very large, their width (measured flat) being as high as 0.400 millimeter, while the summer and autumn vessels are narrower, varying from 0.200 down to 0.050 and even 0.040 millimeter. The height (or length) of the vessels varies much less than their width, averaging from 0.100 to 0.150 millimeter, irrespective of their width: the spring vessels are therefore broader than they are high, and are drumshaped, while the summer and autumn vessels are in the form of elongated cylinders. The ends of the vessels are always sloping instead



PHOTOMICROGRAPH OF AILANTHUS WOOD

of perpendicular to the axis, and the terminal openings are consequently oblique; these openings are always plain and unlatticed. The vessels, particularly the narrow ones, may have a terminal appendix, which is either small or entirely absent in the larger vessels. The pits consist of a large number of very small areolas which honeycomb the wall of the vessel, of which they cover the greater portion. A very characteristic feature is the extremely fine and close helicoidal striations covering the whole surface of the vessel; they are more apparent in certain parts of the vessel, but they actually cover the whole surface of the wall. This striation, however, is not present on all the vessels, or at least it is not visible on all of them after treatment with caustic soda to convert the wood into pulp. According to our observations, it is peculiar to the narrow vessels, and probably to those formed towards the end of the growing season. It constitutes a good means for the identification of the pulp, for this striation, which is due to local thickening of the wall which projects inside the vessel, is to be found in but a small number of paper making species, such as linden, maple, ash, chestnut, and broom. In the latter species, however, the arrangement of the striation is different, and moreover the shape of the vessels and of the fibers is such that there is little liklihood of their being mistaken for ailanthus.

In addition to these constituents, ailanthus pulp also contains small rectangular cells which come from the medullary rays. They are not numerous and possess no very characteristic feature.

In samples which we examined these various constituents were completely isolated and no undisintegrated bundles remained, showing that defibering was thorough and complete. Moreover, they were completely delignified and were stained a deep purple by zinc chloro-iodide, as is the case with all broad-leaved woods after treatment with caustic soda.

Essentially a Filler Pulp

Such is ailanthus cellulose. It is essentially a filler pulp; that is, it can be used only in admixture with stronger pulps which give the requisite strength to the sheet.

Bleached ailanthus pulp could certainly be used, when blended as above stated, in the manufacture of fine papers; as a matter of fact this is probably the only use to which it could be put, and even for this purpose it is inferior to poplar or aspen pulps, the fibers of which, though short, exceed 1 millimeter in length.

The unbleached pulp is of practically no use, as, owing to the shortness of the fibers, it could only give a weak wrapping paper which would be absolutely valueless.

But though ailanthus pulp could, strictly speaking, be of some value when considered from a purely technical standpoint, it certainly could not be economically and profitably used in paper making. The rather drastic treatment required would necessarily be expensive and would give a low-grade product at a high cost.

Dry Quenching Equipment Corp. Formed

George E. Learnard, president of the International Combustion Engineering Corporation has announced the acquisition from Sulzer Brothers, Winterthur, Switzerland of the Sulzer System for dry quenching coke which will be developed in this country by a new subsidiary, Dry Quenching Equipment Corporation.

The Sulzer System is widely used in Europe for cooling coke without the use of water. Steam is produced for power and plant purposes during the cooling process, thus diverting to useful work the sensible heat of the coke, which is at present lost by wet quenching.

The first unit in America was installed by Sulzer Brothers for the Rochester Gas & Electric Corporation where the equipment is exceeding the manufacturer's guarantee in daily operation.

The directors of the new corporation are: George E. Learnard, Chairman; H. D. Savage, President; G. G. G. Hunter, Vice-President George H. Hansel, Treasurer; Hans Sulzer, of Winterthur, Switzerland; F. Oederlin, of Winterthur, Switzerland; E. N. Goodwin, New York.

Walter Sennhauser, at present connected with Sulzer Brothers of Winterthur, will come to this country as Chief Engineer.

Judge Moore Honored

[FROM OUR REGULAR CORRESPONDENT]

COVINGTON, Va., August 15, 1927.—With characteristic dignity, yet in an address marked by charming wit, Judge George K. Anderson delighted the large and representative assemblage which gathered in the Alleghany County courthouse at Covington, when the portraits of eleven Virginians who have contributed to Alleghany's accomplishments and general history were presented to the county.

Judge Anderson paid a brilliant and most eloquent tribute to Judge Forrest Moore, who, he said, had done more to carry forward the interests of Covington and Alleghany County than any other one man, the directors of the West Virginia Pulp and Paper Company having voted to bring their great plant to Covington upon Judge Moore's advice, thus adding millions to the resources of this section. He would be delighted, he said, to see the people of Alleghany bring him here to reside and build him a home.

Use of Treated Wood for Machine Room Roofs

By George D. Bearce *

The machine room roof of a paper mill is subjected to very exacting conditions due to the high temperature humid air that comes in contact with the under side of the roof surface. The relatively short life of the ordinary wood deck roof has lead to the adoption of concrete, gypsum and other socalled semipermanent roofs. This class of roof construction has the two following disadvantages over wood:

1. High initial installation or replacement cost;
2. Lower insulating value.

The increased investment cost of this type of roof when used in a new mill that is being built may not look high because of the large expenditures for other construction and equipment. Nevertheless, it is there and all steel work and supports must be designed to meet the demand of a heavier load, thus adding to the expense when compared to a wood roof.

The second disadvantage of the semipermanent type of roof is its lower insulatiing value. This is far reaching, since the heat lost by radiation creates lower temperatures on the under side of the machine room roof, and this in turn will cause condensation unless more ventilating air at high temperature is supplied. This condition, therefore, affects the design of the ventilating equipment and steam required to keep the machine room in good condition.

The following table indicates the relative value of various materials used in the construction of paper machine roofs:

	Heat transfer per degree difference per sq. ft. per day of 24 hours
3 in. concrete slab and roofing	9.4
in. gypsum slab roof	7.9
2¼ in. wood deck (yellow pine)	4.8

If insulation is used on any type of roof it retards heat transfer and helps the condition. The following table shows the relative value of various roofing materials combined with insulation:

	Heat transfer per degree difference per sq. ft. per day of 24 hours
3 in. gypsum slab roof (not insulated)	7.9
3 in. concrete slab and roofing (1 in. of sheet cork)	4.1
2¼ in wood deck (1 in. of sheet cork or Balsam wool)	2.9

(Data compiled from the report of "The Insulation Committee of the American Society of Insulating Engineers" and other authentic sources.)

This would indicate that the heat loss in wood due to radiation is 1/2 to 1/3 that of concrete or gypsum. When all roofs are insulated with the same materials wood has more than 30 per cent advantage from a heat loss standpoint. Although the actual saving in coal consumption due to a better insulation may be only a few hundred dollars a year in the average sized machine room, the intangible savings and improved atmospheric conditions are of considerable importance.

It is recognized that a wood roof for a machine room is economical to construct but that the conditions to which it is subjected create conditions favorable to decay and shorten the life of the roof. This can be largely overcome by the use of wood preservatives. One prominent authority on wood preservation has made the following statement: "It is our belief that a thorough treatment with a good preservative should make an ordinary paper mill roof last *25 or 30 years and possibly much longer.*"

New Wood Preservative

Various kinds of wood preservation methods have been used in this country but recently the "Wolman Salts" process has been introduced. The principal constituents of this preservative are sodium fluoride dinitrophenol and a bicromate, and tests indicate that this is one of the most toxic and effective wood preservatives available. Wolman Salts have been used in Germany for over 20 years on railroad ties, mine props, poles, etc., with good success. Records show that untreated mine timbers lasted less than one year in bad locations, but treated props stand up 10 to 20 years.

The Wolman Salts treatment of lumber does not change the characteristics of the wood. The penetration of this preservative, especially in the sap wood, is very deep when properly done and it, therefore, is an extremely effective agent against all wood destroying fungi. Although this salt is soluble in water it is non-hygroscopic and leaches out very slowly under severe conditions; consequently it is one of the most permanent preservatives known.

Since the sap wood of the pines is easily penetrated with preservative, it is possible to use the less expensive grades of lumber instead of the "select" yellow pine. The Wolman Salts have no corrosive action on metals, are odorless and lumber so treated can be painted or worked the same as untreated stock. Moreover these salts reduce the inflammability of the lumber.

Preserved Wood vs. Semi-Permanent Roofs

The installation cost and life of a machine room roof are the two important factors to be considered. Probably this is more important in case of a reconstruction job than a new unit. Comparative figures indicate that the estimated cost of installing new machine room roofs of gypsum is about 20 per cent more than the ordinary 3 inch wood deck roof. The additional cost of treated lumber over untreated stock is about 15 per cent, thus giving the wood deck roof considerable advantage in first cost. This is unimportant compared to the intangible reduction in operation costs due to better insulation and improved ventilating conditions in the machine room. This economy goes on every day the mill is operating.

Concrete and corkboard insulation have been used by several companies with good success, but the original cost is very much higher and the insulating ability of this combination is even less than a regular wood roof. If an insulating material such as Balsam wool, sheet cork or Celotex is used on a regular wood deck roof, it is the best combination obtainable at a reasonable figure from a standpoint of heat insulation.

Life of Machine Room Roofs

The adoption of the semi-permanent type of roof is too recent to get an accurate estimate of the life of this material. One mill that had a non-insulated concrete machine room roof had difficulty after approximately 15 years and expected to replace it. The trouble experienced may have been due to the quality of the concrete together with the moisture conditions in the machine room created because of no insulation.

The gypsum roof is also semipermanent, but when subjected to high temperature and humidity conditions may not last much longer than an ordinary wood roof. Cases have been reported where the life of this type of roof was even less than that cited above for concrete where very difficult humidity conditions were encountered. If the room is well ventilated and the machines equipped with hoods, good service may be expected from a gypsum roof.

The ordinary wood roof may last from 8 to 12 years depending upon the conditions to which it is subjected. If according to the authority on wood preservation quoted above that a well treated paper mill roof should last 30 years or longer, treated lumber would have nearly the same value from a service standpoint as the semipermanent roofing materials.

From a standpoint of construction and operating cost, it would seem that wood roof that has been well treated with a good preservative should be one of the most satisfactory materials to use on a machine room roof, especially when used in combination with a good insulating material.

* Engineer, News Print Service Bureau, New York.

Lime for the Absorption of Chlorine in Paper Mill "Bleach Liquor" Practice*

By A. H. Hooker, Sr.

In selecting a line for the absorption of chlorine we consider the production of either dry "bleaching powder" or liquid bleach. By far the largest use for these two products is in the paper mills. Until quite recently chlorine was nearly always purchased by the paper mills in the form of bleaching powder; consequently, the lime used to absorb the chlorine was purchased and hydrated by the manufacture of chlorine. A very radical change has taken place, however, and the use of bleaching powder has been rapidly displaced by the use of liquid chlorine and the purchase by paper mills of hydrated lime, in fifty pound bags, or burned lime hydrated at the mill and the absorption of chlorine in a milk-of-lime suspension. The ultimate aim in the paper mill, whether using bleaching powder or liquid chlorine and milk of lime, is to obtain the chlorine in the form of a solution of calcium hypochlorite plus calcium chloride, together with a small amount of free soluble lime and in a clean solution. Such solutions are invariably prepared by decantation and generally with a return counter wash so as to obtain all the values possible from the sludge. One must understand this operation clearly before he can decide on the qualities of the lime most suited to his use.

Preparation of Bleach Solution from Bleaching Powder

Let us consider first the preparation of a typical bleach solution from bleaching powder. This lime must first be hydrated in a mechanical hydrator. It is then spread in layers a few inches thick on the floor of a bleaching chamber or handled in a mechanical bleach machine. Chlorine is absorbed to a point where there will be present about 38 per cent of total chlorine and 62 per cent of hydrated lime, excess moisture, and impurities. Not more than 80 per cent of the actual lime present is combined with the chlorine, an excess of about 20 per cent being required to "stabilize" the bleach. When this bleach is received by the consumer it must be dissolved and made into clear solution for use. Such bleach solutions usually contain from 21 to 42 grams of available chlorine per liter, 21 grams equal half a pound of 35 per cent bleach per gallon.

Let us take a typical solution containing in its finished state about 0.8 pound of 35 per cent bleach per gallon, equal to 33.6 grams of available chlorine per liter. Assuming that we have two tanks each 10 feet deep and 10 feet square equipped with agitators, these tanks will have a capacity of 1,000 cubic feet or 7,500 gallons, each, and can be operated on the counter-wash system. A drum of bleach will weight about 750 pounds. One drum will therefore correspond to 0.1 pound of bleach per gallon. If we add six drums of bleach at about 25 degrees C. (77 degrees F.), mix this bleach for about 15 minutes, and allow it to settle, we will find that with a good quality of bleach we have at the end of 2 hours 30.5 per cent of sludge, 3 hours 21.6, 4 hours 19, 5 hours 17, 10 hours 13 per cent, or 1.3 feet of actual sludge. If we mixed this bleach with colder water or if it was made with lime which did not settle so well, the volumes of sludge over this same period of time would be materially increased. The same would be equally true, of course, if we added more bleaching powder. With the same quality of bleach and the same amount added but with a difference of mixing it at 15 degrees C. (59 degrees F.) we would have at the end of 2 hours 47 per cent of sludge, 3 hours 35.75, 4 hours 29, 5 hours 22.25, and 10 hours 18.75 per cent of sludge. This is the actual sludge in the tank. In addition to this, in decanting the clear liquor, there is always left a certain amount above the sludge, 4 inches equal to 3.3 per cent on a 10 foot tank, which must be added to the above sludges. We would thus have at the end of 5 hours about 20 per cent residue left in one case and about 28.5 per cent in the other.

If we were so operating our tanks as to make one batch every 24 hours in each of the tanks giving two counter-washings, we would have a settling time of 5¼ hours for the strong liquor that is used for storage, 4½ hours for the first wash which is returned as a makeup to mix with the bleaching powder, and 6 hours for the second wash which is returned to mix with the sludge obtained from the first strong liquor, or an available average of about 5 hours' settling time. Counter-washing in this way, the amount lost in the sludge is, of course, proportional to the residual sludge. A 2 per cent loss would correspond to about 23 per cent of sludge and a 4 per cent loss to about 28 per cent of sludge. It will thus be seen that the amount of loss is practically doubled by the difference between these two typical set things, while increasing the sludge to 35 per cent would mean a 10 per cent loss. It will be seen, therefore, that in the manufacture of bleach it is extremely important to the consumer that the lime used should have excellent settling qualities; also that it should be mixed with water at a proper temperature to bring out the true value of the settling quality.

Another word of caution is that excessive agitation of the bleaching powder produces poor settling, all other conditions being equal. The mixing of bleach by circulation through a centrifugal pump is injurious to the settling of that bleach.

Preparation of Liquid Bleach Solution from Liquid Chlorine

Turning now to the preparation of liquid bleach solutions from liquid chlorine in the paper mill, we find that the same general rules will apply—that if chlorine is added to an agitated tank containing milk of lime it will be absorbed and produce a solution practically identical with that obtained from bleaching powder. As the addition of chlorine to lime evolved heat, we will have a temperature rise of about 1 degree C. for each 3 grams of chlorine added per liter, or 0.6 degrees F. (0.3 degrees C.) per gram; consequently, if we are preparing a solution containing 30 grams per liter of added chlorine the temperature will be increased about 10 degrees C. (18 degrees F.). Starting with water at 15 degrees C. (59 degrees F.), we would end with a solution of 25 degrees C. (77 degrees F.). Starting with water in the summer time, which might be 25 degrees C. (77 degrees F.), we would end with a solution at 35 degrees C. (95 degrees F.). This is the upper limit but still safe for solutions of this strength and, of course, this added heat materially improves the settling if it is not carried to the point of decomposition.

In passing chlorine into a suspension of milk of lime, if we have a poor settling lime, we may obtain on the first chlorination as much sludge as would be obtained from an equal strength of bleaching powder settled as the same temperature. In that event only one batch could be made before washing the residual sludge with three counter-washes and the tankage capacity would not be increased over that obtainable with a good bleaching powder, in spite of the fact that only about 10 per cent of excessive lime was used to insure the stability of the solution instead of 20 per cent with bleach. If, on the other hand, we use a quality of lime which would have made good settling bleach, taking advantage of the

* Presented under the title "Importance of the Proper Lime in the Use of Liquid Chlorine for Bleaching and Sterilization" as a part of the Lime Symposium before the Division of Industrial and Engineering Chemistry at the 73rd Meeting of the American Chemical Society, Richmond, Va., April 11 to 16, 1927; reprinted from Industrial and Engineering Chemistry, June, 1927.

[1] Member TAPPI; Technical Director, Hooker Electrochemical Company, Niagara Falls, N. Y.

temperature used in making the solution and of the fact that, while a 10 per cent excess of lime is required for the first batch, each successive batch will require only enough added lime to correspond to the chlorine added, we can build up at least four batches before there is any occasion to wash the sludge. If we do this and prepare a solution containing 33.6 grams of available chlorine, equal to 0.8 pound of 35 per cent bleach per gallon, we can operate our same two tanks on the basis of making four batches per tank every 36 hours with a settling period as follows: 3 hours for the first batch, 4 hours for the second, 4 hours for the third, and 5 hours for the fourth; 4½ hours settling the first wash and 5 hours settling the second wash. This will give us two and two-third batches per tank every 24 hours. It will also mean the loss in washing of 2 per cent of one batch on every four batches, or 0.5 per cent loss as against a 2 per cent loss with poor lime or good bleaching powder. It will also mean that the excess lime is carried along through four batches instead of with each individual batch; consequently, it will reduce the lime consumption very materially. It makes very little difference in the absolute capacity of the tank, operating with a fair quality of bleach or with liquid chlorine and hydrated lime, whether we are making a solution that contains 20 grams of chlorine per liter or 30 grams of chlorine per liter, and operating on a good schedule about 600 pounds of bleach can be handled for 1,000 gallons' capacity in 24 hours or the equivalent of 1,600 pounds of bleach as liquid chlorine and hydrated lime in the same tankage and in the same period of time. With an inferior lime the capacity of the tankage may be reduced to that of a good bleaching powder.

Characteristics of Suitable Lime

The next question is—what are the characteristics required for suitable lime? The chemical analysis alone will not tell the story. Assuming that we have a lime that contains not over 2 per cent of magnesia, not over 1 per cent of silica, and not over 0.5 per cent alumina, iron, etc., it may be suitable for either bleach or use in the preparation of liquid bleach. If to this we add the fact that, when hydrated to a dry hydrate containing about 25 per cent of water, it does not bulk dry over 200 cc. per 100 grams, we probably have a useful lime. This bulk test can be readily made by adding 60 cc. of water to 100 grams of powdered burned lime, hydrating, and noting the characteristics of the hydrate. A great many hydrates will bulk more than 250 cc. per 100 grams of hydrate.

This will probably point to undesirable features for the manufacture of a good settling bleaching powder but may not mean a poor lime for making liquid bleach. The writer has in mind the characteristics of two limes that act physically very much the same when hydrated, particularly as regards bulk. One of these is extremely pure chemically and when treated with chlorine in the form of liquid bleach gives a low sludge and a large number of runs are possible, in spite of the fact that the hydrate is rather bulky and settles none too well before fully chlorinating. Another lime with very similar hydrating characteristics but containing more magnesia produces an excessive amount of sludge and is not nearly so desirable. A lime that is very dense when hydrated apparently can stand a considerable amount of impurity without giving excessive sludges.

Test for Hydrated Lime

Hydrated lime for mill use in preparing liquid bleach can be tested in the laboratory as follows:

There should be available a cylinder of liquid chlorine and a hood with a good draft. Mix 40 grams of hydrate with water to 1,000 cc. in a 14 inch (36 cm.) liter cylinder. Pass in chlorine from the cylinder through a capillary tube and rubber connection, using the capillary to some extent as a stirring rod in the cylinder. By starting with a temperature of 20 degrees C. chlorine bubbles will not be completely absorbed at the start; however, the rate of the addition of chlorine should be such that there is a temperature rise in the cylinder of about 1 degree every 3 minutes. At the end of a 10 degree temperature rise we will have approximately 30 grams of added chlorine and this can be added in little less than half an hour. After obtaining a 10 degree temperature rise, the solution should be allowed to settle and the amount of sludge noted at the end of 14 minutes. Fourteen minutes' settling in a 14 inch cylinder would correspond to 2 hours' settling in a 10 foot (3 meter) tank the temperature of which would approximate 30 degrees C. We should now be able to pour off more than 800 cc. of clear solution and should, therefor, leave 200 cc. of sludge and solution. If we now add 30 grams of hydrate and again bring up the solution to 1,000 cc. and a temperature of 20 degrees C., we can add somewhere between 24 and 27 grams of chlorine without overchlorination.

Assuming that we add 24 grams of chlorine, meaning a temperature rise of 8 degrees, we can again repeat our settling test and again draw off 200 cc. of clear solution, which can be added to the first lot and again make up our solution by the addition of another 30 grams of hydrate. This will give a third batch and into this third batch we can pass chlorine to the point where there is only a slight excess of lime, being careful not to overchlorinate. If we again allow this to settle and note the amount of sludge at the end of 14 minutes, we will have, if the operation has been properly carried out, sufficient data to valuate the hydrate fairly. We will have used 100 grams of hydrate and this should have absorbed a total of about 85 grams of chlorine; hence the added temperature rise should have amounted to about a total of 28 degrees. Anything more than 85 grams of chlorine absorbed would indicate an exceptionally good lime. The most important characteristic, however, would be the amount of sludge at this time. A very good lime would give about 20 per cent of actual sludge where 85 grams of chlorine have been passed into 100 grams of hydrate and the concentration kept between 30 and 40 grams per liter. This will clearly point to the fact that four or more batches can be operated before the sludge is washed. On the other hand, if the amount of sludge so obtained is 40 per cent, we can hardly operate more than two batches without washing the sludge and then the loss would be a little above normal. The character of a bleach solution so prepared should be noted by determining the total and available chlorine in the solution; further than that, the solution should be set aside and, particularly the last run, allowed to stand on the sludge for a period of 24 hours to note whether there are any characteristics in the lime which tend to cause undue decomposition of the solution. The development of a pink color in these solutions due to traces of manganese does not of itself offer any objections.

Although this method of testing the lime may be a little laborious, it is more enlightening than any other method that the writer has tried. In addition to the qualities inherent in the lime itself, there is a material difference in the density of the hydrate produced according to the way the lime is hydrated. As the method of hydration, however, depends so largely on the mechanical means used in hydrating it, there is only one statement that can be made—aim for the densest possible hydrate with a given quality of lime. The peculiar physical qualities in the limestone itself and in the burned lime which to make the ultimate impurities, including magnesia, settle well or poorly do not seem to come out in an ordinary chemical analysis, but are of utmost importance in the washing of sludges, and where a paper mill is pushed to capacity in producing bleach solutions a suitable lime is of utmost importance. It must be remembered that an excess of lime is always used and the more batches that can be run before throwing away this excess, the lower the lime-chlorine ratio will be kept. It should also be borne in mind that the chlorine used costs at least four times as much as the lime and that every sludge loss caused by lime is magnified by the value of the chlorine. A lime of moderate purity which absorbs a considerable amount of chlorine might be used in a plant that had much more than ample settling capacity and a long period of time for washing and give a low lime-chlorine ratio without serious loss.

Fibramite*

A Material With Unlimited Possibilities

By Paul Tacussel

"Fibramite" is a product obtained by special treatment of a fibrous substance (either paper or fabric) impregnated with an organic binder (natural or synthetic resin), which is then subjected to a high temperature and an extremely high pressure. Its composition is fairly constant, and it contains 55 per cent of fibrous material and 45 per cent of organic binder.

Properties

Fibramite is made in several grades, all possessing the same general properties, but differing from one another in certain special properties which render them better suited for special purposes.

It is insoluble in all known solvents. Dilute, non-oxidizing acids have no effect upon it; but in nitric and sulphuric acids and in concentrated alkali solutions it is attacked and swells up.

It is very homogeneous and constitutes a very high grades insulator (density 1.32). It combines high dielectric resistance with great mechanical strength. Its absorption of oil or moisture is practically nil. It is not deformed even under very severe service conditions. It can take a high polish, and is easily machined.

Some grades of fibramite resist the action of heat, even up to carbonizing temperatures, while others are made so as to soften slightly at a given temperature in order to facilitate the manufacture of objects of complicated shape.

Applications

The following list gives some of the applications of fibramite. It cannot be considered as complete, as new uses are continually

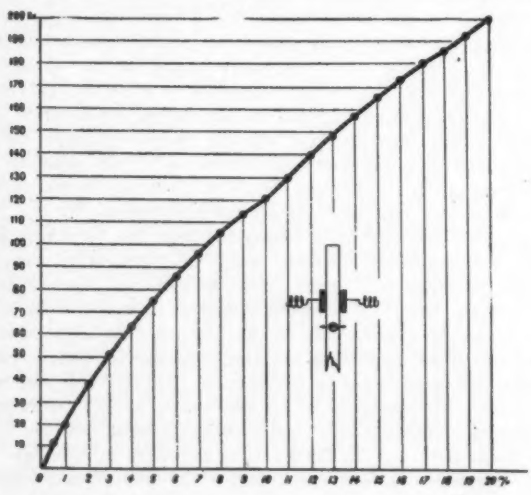


FIG. 1

Curve giving the breakdown voltage in kilovolts, as a function of the wall thickness, in mm. Tension alternative: 50 periodes. A. c. voltage: 50 cycles.

suggesting themselves to those who are familiar with this "material with unlimited possibilities."

Insulating cylinders for transformers; pipes, boards and machined parts for electrical apparatus; insulators for bus bars; supports for electric conductors; insulating tubes for carrying electric wires through walls; insulating partitions for high tension cells; insulators for X-ray transformers; telephone equipment; radio panels; sockets, couplings, handles, tubes, disks, washers for various purposes; supports, boxes, linings, fan blades, silent gears, pinions, pulleys, unions, fireproof partitions for airplanes, parts of special belting, tubes for the chemical industry, etc.

Various Grades of Fibramite

Plates of No. 101 Fibramite (Brown)

No. 101 fibramite is made of paper and synthetic resin.

Its color is brown. From the standpoint of dielectric resistance and mechanical strength, it is the highest grade fibramite

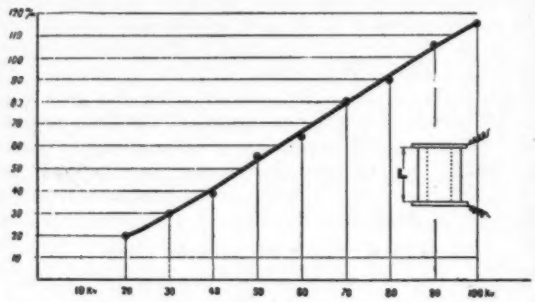


FIG. 2.

Curve giving the length of the rings (or tubes) as a function of the voltage when testing in oil.

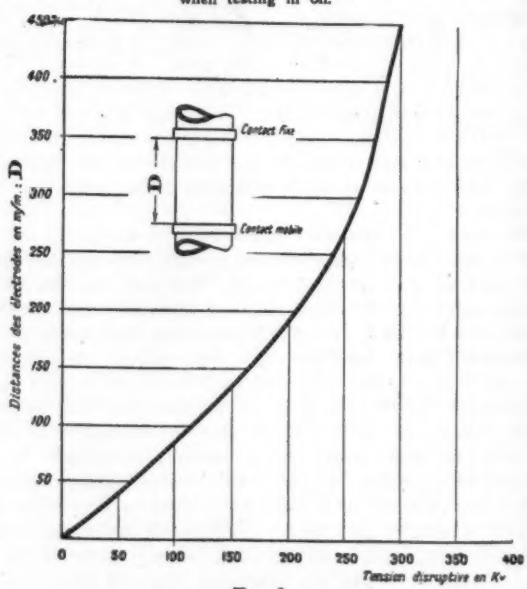


FIG. 3.

Curve of breakdown voltage in oil. Tubes immersed in the oil and heated with the latter.

Properties of Oil.....	Specific gravity	0.89
	Breakdown voltage in oil, with spherical electrodes 12.5 mm. in diameter and 5 mm. apart	48,000 v.
	Viscosity at 20° C.	6° Engler

Distance between electrodes in mm. Breakdown voltage in kilovolts.

prepared from paper. It can stand, for short periods, temperatures of up to 140 degrees C. It can be sawn to the required dimensions, and drilled and threaded perpendicularly to the grain. Sheets 3 mm. or less in thickness can be punched when heated to 135 degrees C. (No 121 fibramite, which is described a little

* Translated from Le Papier xxix, 1201-1204, November, 1926, by A. Papineau-Couture.

further, are recommended when a large number of threaded holes are required with the grain, or when complicated designs are to be punched or stamped out.)

This grade is sold in sheets and plates 1350 by 650 mm., and from 0.5 to 60 mm. thick. Owing to its mechanical and dielectric properties, its use is recommended for general purposes, and wherever mechanical strength is particularly important.

Plates of No. 101 Fibramite (Black)

It differs from the previous grade by its color, and also by its slightly lower dielectric resistance, which is due to the presence of the black pigment. As in the previous case, it is sold in sheets and plates 1350 by 650 mm., 0.5 to 60mm. thick.

It is superior to ebonite, compressed fiber and similar insulators. Highly polished radio panels are mostly made of black fibramite.

Plates of No 121 Fibramite (Light-Colored)

No. 121 fibamite is made from a special paper, impregnated with synthetic resin. It is the most homogeneous grade, and as a result can easily be machined in all directions. Electrically and mechanically it is somewhat weaker than the other grades.

One of its most valuable properties is the ease with which it can be punched. Thin sheets can be punched cold; but it is generally preferable to heat to about 120 degrees C. before punching.

It is sold in sheets 1,350 by 650 mm., and from 1 to 60 mm. thick. It is specially recommended for articles in which numerous holes are to be punched, or which require a considerable amount of drilling, threading and machining.

No. 141. Plates (Grey)

This grade is made from asbestos paper, impregnated with synthetic resin, and its use is indicated for material which is to be subjected to temperatures over 140 degrees C.

No. 151. Plates (yellow)

The essential constituent of this grade is a cotton fabric, the several plies of which are bound by means of a special synthetic resin. It is exceptionally strong and tough, and it not injured by the action of oil or of water. It has a high elastic coefficient.

It is recommended for use with high-frequency currents.

It is sold in the form of boards 1,350 by 650 mm., and 4 to 60 mm. thick

It is used for its electric properties in wireless telegraphy with high-frequency currents, and for its mechanical properties in the manufacture of silent gears.

No. 101. Tubes (Brown and Black)

Tubes of No. 101 fibramite have the same general properties as the plates of the same grade and corresponding color. They are unaffected by such solvents as alcohol, benzine, turpentine, water, oil, and weak acid or alkaline solutions. They retain their shape and homogeneity even at a temperature of 140 degrees C. for short periods of time, and can withstand a temperature of 100 degrees C. indefinitely. At high temperatures they are carbonized. They are easily machined.

No. 101 fibramite is sold in tubes varying in diameter from 3 to 2,000 mm., with walls from 1 to 60 mm. thick, and in lengths of 3mm. to 2,000 mm., and even more.

Owing to their high strength and dielectric resistance, these tubes are used in all sorts of electrical equipment, from the smallest to the largest transformers, as well as for numerous mechancial purposes.

Rods and Bars of Various Cross Sections

Rods and bars of various cross sections are made from fibramite tubes. They are characterized by high dielectric resistance and mechanical strength.

Insulation of Metal Bars and Pipes

Metal bars and pipes can be insulated by applying a layer of insulating fibramite. This is used mainly in the electrical industry, but also affords a neat and decorative coating for pipes or bars used for various purposes.

This grade is made from paper and shellac. It possesses good dielectric properties, but softens in hot oil or in hot air.

The use of these tubes is indicated in electrical machines, in air or in oil, provided it is not subjected to a temperature greatly in excess of the atmosphere. This grade is recommended for hot molding; for instance a round tube can be given any desired cross-sectional shape.

Special tubes can be made containing asbestos, mica, sheet metal or metal foil, etc., for special purposes (for instance, condenser tubes or terminals, etc.)..

Fibramite lends itself to the molding of special parts of various shape, suitable for the particular use for which it is intended. These products will have essentially the same properties as the standard plates of the corresponding grade.

We give herewith characteristic curves (Figs. 1, 2, 3) of the dielectric properties of fibramite. These properties are remarkably constant.

We have already outlined the behavior of fibramite towards physical and chemical agents.

We may add that the mechanical properties of fibramite are comparable to those of gaiac wood.

New TAPPI Members

Members admitted to the Technical Association of the Pulp and Paper Industry during the past few months include:

Robert Bell-Irving, Powell River Company, Ltd., Powell River B. C.

G. A. Brown, Bennett, Ltd., Chambly Canton, Que.

D. S. Davis, International Paper Company, Glens Falls, N. Y.

V. S. Denison, Paper and Textile Machinery Company, Sandusky, Ohio.

L. J. Dorenfeldt, St. Olavs Gt. 35, Oslo, Norway.

Pierre Drewson, Barrett Company, New York. N. Y.

A. E. H. Fair, Lincoln Pulp and Paper Company, Ltd., Merritton, Ont.

H. M. Ford, Northwestern Pulp and Paper Company, Portland, Ore.

K. W. Fries, Oxford Paper Company, Rumford, Me.

J. C. Funcke, Riordon Pulp Corporation, Ltd., Hawkesbury, Ont.

J. C. Gayler, SKF Industries, Inc., New York, N. Y.

A. E. Gibbs, Pennsylvania Salt Manufacturing Company, Philadelphia, Pa.

E. G. Ham, John A. Manning Paper Company, Troy, N. Y.

E. Heuser, Riordon Pulp Corporation, Ltd., Hawkesbury, Ont.

G. K. Hill, Gilbert Paper Company, Menasha, Wis.

R. L. Hoenstine, York Haven Paper Company, York Haven, Pa.

K. B. Howell, 99 Lenox Ave., East Orange, N. J.

K. A. Hultan, 271 Hicks St., Brooklyn, N. Y.

I. C. Jennings, Nash Engineering Company, South Norwolk, Conn.

M. C. Jones, Michigan Carton Company, Battle Creek, Mich.

G. E. Koster, Itasca Paper Company, Little Falls, Minn.

M. B. MacNeille, Fairbanks, Morse & Co., Three Rivers, Mich.

G. F. McCrea, Mead Pulp and Paper Company, Dayton, Ohio.

E. E. Miller, Oxford Paper Company, Rumford, Me.

William Nash, William Nash, Itd., St. Pauls Cray, Kent England.

F. C. Peterson, N. Y. S. College of Forestry, Syracuse, N. Y.

W. E. Piper, Dorr Company, New York, N. Y.

J. L. Polk, Mohawk Paper Makers, Inc., Cohoes, N. Y.

G. H. Pringle, Mead Pulp and Paper Company, Chillicothe, Ohio.

E. B. Roberts, Bemis Brothers Bag Company, Peoria, Ill.

G. M. Seidel, Iowa State College, Ames, Iowa.

R. E. Sumner, Calco Chemical Company, Bound Brook, N. J.

G. H. Tomlinson, Canadian Cellulose Company, Ltd., Cornwall, Ont.

F. B. Watson, National Biscuit Company, New York, N. Y.

W. R. Willetts, Oxford Paper Company, Brooklyn, N. Y.

E. R. Williams, Neenah Paper Company, Neenah, Wis.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

Micrography of the Cellulose Obtained by G. Vernet at the Technological Laboratory of Saigon. L. Vidal. Mon. Papeterie Francaise 57, 130-135, March 15, 271-280 (June 15, 1926). The conifers were cooked at 7 kg. per sq. cm. with a solution containing 69 g. of caustic soda per liter, and the deciduous woods were cooked at the same pressure with a solution containing 38 g. of caustic soda per l. On cooking for 4½ hours, *Pinus merkusii* (Jungh and de Vries) (also known as Lang-Bian pine and as Laos two-leaved pine) gave a pulp which bleached with some difficulty with a 35 per cent yield. The pulp is very similar to kraft made from Scotch pine, with very long strong fibers. *Cunninghamia sinensis* (R. Br.), on cooking for 2½ hours, and bleaching, gave a 35 per cent yield of pulp similar to spruce, with fibers somewhat longer but not as strong. Four conifers which have not yet been definitely identified gave approximately 40 per cent yields of pulp with fibers slightly longer but considerably weaker than spruce, and which would probably be suitable as a filler stock. *Dipterocarpus punctualatus* (Pierre) (Dau do) on cooking 3 hours gave 42 per cent of fairly strong pulp with medium fibers which would hydrate easily. *Sterculia foetida*, L., and *S. hypochra* (Pierre) (Trom) on cooking 4 hours gave 30 per cent of pulp of fair strength and better than a mere filler. On cooking for 2 hours *Terminalia arjuna* (Wright) gave a 34 per cent yield and *T. chebula* (Retz) 28 per cent of pulp suitable as a filler and equivalent to poplar pulp; while *T. catappa*, L., gave a much weaker and lower grade pulp. *Hevea braziliensis* (Muell) on cooking 4 hours gave 33 per cent of pulp with fairly long but thin-walled fibers, suitable as a filler stock. *Casuarina equisetifolia*, L.f., on cooking 5 hours gave 38 per cent of a weak, short-fibered pulp. On cooking 3 hours, *Sesbania grandiflora* (Poir) gave 37 per cent of weak, short fibered pulp, which would not be of much value. The pulps of *Poinciana regia* (Boj.) and of *Inga dulcis* (Willd.) consist of short, thin-walled fibers and are of little value. *Agave cantula* (Roxb.) on cooking 2 hours gave a 56 per cent yield of strong long-fibered pulp. The micrographic characteristics of the various pulps are described in detail and illustrated.—A.P.-C.

A Critical Study of Southern Pine Fiber. T. H. Nilsson. Paper Mill 49, No. 49, 4, 6 (Dec. 4, 1926) The measurements which are described indicate that: (1) There does not seem to be any marked difference in the ratio of length to diameter of fibers of the southern pines as compared with northern conifers. (2) The ratio of length to wall thickness is much lower for southern pines. (3) The percentage of summer fibers appears higher for the southern pines (4) Pulp made from the spring wood of the southern pine has greater bursting strength, but lower tearing strength than that made from summer wood. (5) Less beating is required to attain maximum strength in the pulp from spring wood. (6) The spring fibers are more easily fibrillated but also more easily cut or broken in beating or jordaning. (7) The summer fibers yield stronger fibrils, but are harder to fray out at the ends. The well known differences in quality of southern kraft as compared with the northern or European kraft, namely better tear, stiffness and rattle, but poorer bursting strength and pliability, are thought to be due to the thicker cell walls and larger percentage of summer fibers in the southern pulp.—A.P.-C.

Cellulose from Corn Stalks. Frederico Spirindelli. Notiz. chim.-ind. 1, 412-413 (1926); Chem. Abstr. 21, 1008. An investigation was made of corn stalks as an economic source of cellulose. The stalk fibers can be disintegrated readily and in boiling alkaline solutions, the pectins are liberated as pectates. Some of the pectates are soluble, such as sodium pectate, while others are insoluble, as calcium pectate. The isolated fibers are long and hollow throughout, turn brown with iodine in potassium iodide solution, give a lighter color with vetillard reagent and a bluish color with iodated zinc chloride solution. Freed from the pectins, which bind them together, the fibers still contain mucilaginous substances formed during the alkaline treatment. The amount of these gelatinous substances varies with the treatment, the maximum amount being found after treatment with concentrated alkaline solutions under pressure and only traces where the solutions are more dilute and the time of treatment is short. The final product is white and suitable for a wide variety of uses and only the economic part of the problem remains.—C. J. W.

Waste Kauri Wood as a Source of Paper Pulp and Resin. Anon. Bull. Imp. Inst. 24, No. 4, 654-664 (1926). Analysis of 5 samples consisting of (1) green stump (young tree), (2) green limb (large limb from Carter's workings), (3) dry stump, (4) dry limb from old worked-over areas (5) cross section of young Kauri, gave: moisture 8.5 to 13.3 per cent, ash 0.3 to 0.9 per cent, resin 1.7 to 19.9 per cent (2.0 to 21.9 per cent on dry basis), cellulose 40.1 to 53.4 per cent (44.1 to 61.5 per cent on dry basis), fiber length 2.5 to 7.2 mm., average 4.6 mm., fiber diameter 0.020 to 0.0787 mm., average 0.045 mm., felting power (diameter::length) 0.009 to 0.011. Cooking 7 hours at 160 degrees C. (equivalent to 75 pounds per square inch) with 24 per cent of caustic soda (on the weight of the wood) at a concentration of 4 per cent gave 33 to 43 per cent yields of unbleached pulp and 29 to 39 per cent yields of bleached pulps, with caustic soda consumptions of 12.1 to 14.5 per cent. The pulp was difficult to bleach, and yielded a cream-colored paper of excellent strength and quality. The deresinated woods when cooked under the same conditions, gave pulps similar to those from the original woods, but in higher yields owing to the increased cellulose content of the deresinated wood and with about 1 per cent lower caustic soda consumption. The yields in these cases compared favorably with those obtained commercially in the manufacture of ordinary soda wood pulps. "Fossil" kauri wood, from which much of the resin had been extracted with alcohol, but which still contained 10.0 per cent resin, when cooked as above gave 30.0 per cent unbleached and 28.0 per cent bleached pulp, with a consumption of 12.2 per cent caustic soda. The pulp could only be bleached to a deep cream; but the bleached paper was otherwise of good quality and excellent strength. The low yield, as compared with that from fresh kauri wood with similar resin content, is attributed to the wide variation in the size of the chips. The resin extracted from the kauri wood had a softening point of 64 degrees C., a melting point of 72 degrees to 74 degrees C., an acid number of 41, and a saponification number of 124. On melting, the resin could be pulled out into long elastic threads.—A.P.-C.

Prospects for the Manufacture of Pulp from Eucalyptus Wood. H. Tschudi. Wochbl. Papierfabr. 57, 1217-1218 (Oct. 30, 1926). The eucalyptus tree grows about five times as rapidly as coniferous trees, and sometimes attains a height of 100 m. A poor pulp yield is obtained and the liquor consumption is high because of the high lignin and tannin contents. Eucalyptus pulp is not a satisfactory substtute for straw or alfalfa fibers owing to the

shortness (0.9 mm.) and the thickness (0.017 mm.) of its fibers.—J.L.P.

African Woods for Paper Manufacture. A. Voigt. Wochbl. Papierfabr. 57, 1425 (Dec. 18, 1926). Out of 5 west African woods, *Mitragyna macrophylla, Terminalia superba, Irvingia barteri, Daniella (ajanothyrous)*, and *Triplochiton nigericeum*, the last mentioned gave the highest yield (44 per cent) of pulp by the soda process. The consumption of soda and bleach was greater than with poplar. Terminalia gave a 41 per cent pulp yield, but the soda consumption was greater than with *Triplochiton*.—J.L.P.

Manufacture of Pulp from Exhausted Chestnut Wood from Tannin Manufacture. Anon. Notizario Chimico Industriale; Papeteria 48, 954-958 (Oct. 25, 1926). An analysis of the cost of treatment of exhausted chestnut wood with caustic soda and chlorine. With conditions as they are in Italy at the present time, a profit is shown of at least 23 per cent on the capital invested.—A.P.-C.

Removing Ink from Paper. O. Welsh. U. S. pat. 1,601,193, Sept. 28, 1926. Paper is treated with a saponifying agent such as sodium carbonate and sodium silicate in the presence of rosin or other suitable resinous compound to remove printers' ink.—A.P.-C.

Paper Deinking Process. G. Hammond. Eng. pat. 257,774, Nov. 5, 1925. Waste paper is pulped and the pigment is removed. The pulp is then mixed with an alkali acid sulphite at a temperature below 110 degrees F. Prior to treating with the sulphite the pulp may be treated with a caustic soda solution, also at a temperature below 110 degrees F. The alkali acid sulphite is preferably added in excess of that required to neutralize the alkalinity of the pulp, the resulting pulp being washed to remove the excess sulphite.—A.P.-C.

Pulping Waste Paper. J. F. L. Moeller. Eng. pat. 258,630. This rapid treatment consists in first soaking and tearing the paper, agitating to loosen the dirt, washing, grinding, agitating and again washing. The processes are repeated and each successive grinding becomes finer. Dirty water is passed through a sieve in order to recover solids that may be used in the manufacture of cardboards, etc.—A.P.-C.

Report of the Committee on Wood Measurement of the Technical Section of the Canadian Pulp and Paper Association. P. J. Murer. Pulp and Paper International No., 147-150 (Feb., 1927). While large individual variations occur in the density of pulpwood, it is considered that the average figure for representative numbers of logs of one district and of the same species, will practically be a constant; and that consequently the conversion from weight to volume, and vice versa, by the use of a factor is possible. For the same species of pulp wood the average specific gravity factor in one district may differ from that of another district. Up to the present, the tests made indicate that the density of balsam, for the same year ring width, is about 20 per cent less than that of spruce.—A. P.-C.

Cellulose

Cellulose Research and Utilization of Cellulose. V. Hottenoth. Chem. Ztg. 50, 1004-1006 (1926). A review.—C.J.W.

More About Evaluation of Sulphite Pulp. Th. Bentzen. Paper Trade J. 83, No. 22, 48-49 (Nov. 25, 1926). Application of the mercerization method of determining alpha-, beta- and gamma-cellulose (Paper Trade J. 82, No. 8, 197-203 (Feb. 25, 1926), by Bentzen and others, has shown it to give uniform and reliable results. The breakdown of cellulose when heated in presence of a trace of chlorine ions is confirmed, the alpha-cellulose content per cent and 2.68 per cent to 20.11 per cent and 6.00 per cent, after the driers of the paper machine, the beta- and gamma-cellulose contents having correspondingly increased from 14.96 per cent and 2.68 per cent to 20.11 per cent and 6.00 per cent, respectively. Bentzen considers that a reasonable amount of beta-cellulose in high grade sulphite pulp will do more good than harm due to its sizing qualities; though no direct experimental evidence in support of this theory is available. Yellow stains often present in sulphite pulp are shown to be of two different kinds, one due to resins and the other to beta-cellulose. A sample of pulp with satisfactory copper number and high alpha-cellulose content (as determined in the usual manner), was found by Bentzen's mercerization method to contain real alpha-cellulose 59.47 per cent, colloidal cellulose 19.73 per cent, beta-cellulose 12.80 per cent, gamma-cellulose 8.00 per cent, showing that the copper number determination and usual alpha-cellulose determination are unreliable as a measure of the quality of pulp.—A.P.-C.

General Study of the Chemistry of Cellulose and Its Principal Derivatives. P. Ehrmann. Caoutchouc Etl Gutta-Percha 25, 13,030-13,032, 13,064-13,065, 13,099, 13,102, 13,138-13,139, 13,175-13,176, 13,240-13,241, 13,275-13,276 (1926). The subjects treated include the definition of cellulose, its occurrence, properties and formulæ proposed for its constitution; hydracellulose and hydrocellulose; oxycellulose; quantitative methods for distinguishing modified celluloses, esters and ethers of cellulose, preparation and properties of nitrocelluloses, cellulose sulphate, cellulose acetate and cellulose xanthates. Bibliography of 123 references.—A. P.-C.

Again: The Determination of Alpha Cellulose. P. Waentig. Papierfabr. 24, 689-690 (Nov. 7, 1926). The dilution of the mercerizing liquor in the alpha cellulose determination before filtration produces an increase in the alpha cellulose content. The Jentgen procedure should be changed (1) by extending the period of treatment to 45 minutes instead of 30 minutes; (2) by using a 3 g. sample and 50 cc. of liquor, and (3) by washing the pulp with 400 cc. of an 8 per cent sodium hydroxide solution, instead of water. The use of the Jena glass filter is recommended. The pre-drying of the pulp sample at 105 degrees C. is not necessary since air-dry pulps yield practically the same results. Conditions affecting the determination are (1) the temperature (greater solvent action is exerted at temperature as low as 6 degrees C), (2) ratio of mercerizing liquor to the weight of pulp, (3) uniform washing, (4) no mechanical treatment of the pulp before the mercerization process, (5) duration of treatment, and (6) a thorough but not a continuous mixing of the liquor and pulp.—J.L.P.

The Standard Celluloses. C. G. Schwalbe. Papierfabr. 24, 769-775 (Dec. 12, 1926). Standard cotton, straw, flax, hemp, and wood pulp celluloses for scientific and technical purposes are discussed. Cotton cellulose as a scientific standard should be capable of complete conversion to glucose and the purity of the standard should be defined by the alpha cellulose or baryta resistance test, the resin, fat and wax content, ash, copper number, hydrate copper number, and hydrolysis number. The chemical reactivity of cotton cellulose is influenced by the incrustations present, the life age and the period of storage of the fiber. The fine structure of the fiber changes according to the climate and living conditions of the plant. A standard technical cotton cellulose (linters) may be defined by the ash, fat, and wax contents, the copper number, lignin content, tendency to swell, cuprammonium viscosity, and other tests. The purity of standard ester wood pulps includes determinations of the alpha cellulose, lignin, pentosans, resin and fat, ash, viscosity, and degree of swelling. Standard wood pulps intended for the manufacture of paper are defined with reference to the chlorine consumption number, resin and fat contents, bleachability, and swelling tests. The fiber surface may be examined by a dark-field microscope. Mechanical properties of standard wood pulps are defined with reference to their strength and stretch tests. Standard wood pulps for the manufacture of artificial silk are tested similarly.—J.L.P.

Contributions to the Knowledge of Viscose. I. E. Berl and J. Bitter II. E. Berl and A. Lange. Cellulosechemie 7, 137-147 (Oct. 3, 1926). I) Xanthate formation with higher alcohols, such as glycol and glycerine, indicates that only one hydroxyl group reacts. Two hydroxyl groups appear to react in the formation of cellulose xanthate which is ascribed to specific properties of the

fiber structure. Viscose, during the ripening process, yields a cellulose which is physically more open in structure and has a larger surface area, and, chemically, contains hydrated and free hydroxyl groups, as well as alkali in the form of alcoholate and by adsorption. The carbon disulphide is adsorbed because of this increased surface area. Xanthate formation occurs and a high degree of dispersion of the cellulose takes place. By hydrolysis, cellulose xanthogenic acid is formed which decomposes to a colloidal dispersed cellulose. Aggregation of these particles occurs until coagulation, and a gel of hydrated cellulose is the result. The carbon disulphide from the cellulose xanthic acid decomposition reacts with the alkali to form sodium sulphide. (II) Viscosity determinations establish that viscose ripening does not result in a polymerization of the cellulose but rather is an aggregation of small particles. Wood pulp or linter viscoses were precipitated with sodium chloride or acid bisulphite, washed to neutrality and dried, nitrated and their viscosities measured in acetone solution. All the curves show a viscosity minimum during the initial stages of the ripening process.—J.L.P.

Investigations with Artificial Silk (Hydrated Cellulose). O. Faust and K. Littmann. Cellulosechemie 7, 166-168 (Dec. 12, 1926). As a means of characterizing various artificial silks the Weltzien method (C. A. 20, 2251 (1926)) for determining the degree of swelling, using a 4 per cent sodium hydroxide solution, is recommended. In this way drastic acid treatment can be detected.—J. L. P.

Alkali Cellulose III. E. Heuser and R. Bartunek. Cellulosechemie 7, 169 (Dec. 12, 1926). Polemic with Hess (Z. Angew. Chem. 38, 230 (1925)) regarding the constitution of the sodium hydroxide-cellulose complex. Evidence is cited to show that the formula $(C_6H_{10}O_5)_2.NaOH$ is the more probable one. The amount of potassium hydroxide absorbed from concentrated solutions is not more than that required for $(C_6H_{10}O_5)_2.KOH$. In disagreement with Hess the swelling action of sodium hydroxide is reduced but not prevented by the presence of alcohol. If the alcohol solution is sufficiently concentrated, the dissociation of the sodium hydroxide is repressed and the alkali-cellulose complex is not formed. Alcohol, however, may result in an increased adsorption of sodium hydroxide by the cellulose.—J.L.P.

Swelling of Cotton Cellulose in Sodium and Potassium Hydroxides of Different Concentrations. O. Faust. Cellulosechemie 7, 155-156 (Nov. 7, 1926). Maximum swelling of cotton cellulose (Schleicher and Schull filter paper, no. 597) at 20 degrees C. occurred with a 10 per cent sodium hydroxide solution, above which strength the swelling rapidly decreased and was practically constant for 14-35 per solutions. In the case of a potassium hydroxide solution, swelling slowly increased until a 43 per cent solution was obtained. A more concentrated solution (46-53 per cent) resulted in an increase in the amount of alkali absorbed.—J.L.P.

The Swelling of Sulphite Pulp in Sodium and Potassium Hydroxides at Different Temperatures. O. Faust. Cellulosechemie 7, 153-155 (Nov. 7, 1926). Swelling determinations on a sulphite pulp (89 per cent alpha-cellulose; copper number 1.15) showed sodium hydroxide solutions up to about 17 per cent concentration were absorbed to a greater extent at 0 degrees and 20 degrees C. than were the potassium hydroxide solutions. Maximum swelling occurs with a 10 per cent solution of the former and at the lower temperature. Data covering 2-30 per cent sodium hydroxide and 2.8-42 per cent potassium hydroxide solutions are tabulated.—J.L.P.

Action of Sodium Hydroxide on Cellulose Under High Pressure. Sven Oden and S. Lindberg. Ind. Eng. Chem. 19, 132-133 (Jan., 1927). Pure cellulose (Swedish filter paper and pure cotton) was treated with caustic soda solution at a temperature of 372 degrees C., at which point the gases evolved had raised the pressure to 241 atmospheres. Analysis is given of the products of decomposition obtained under these conditions. No single formula will account for the results obtained. The first stage of decomposition is evidently the splitting up of cellulose into glucose, which is known to yield lactic acid.—A.P.-C.

The Structure of Solid Colloids. Jacques Duclaux. 2ieme Cons. Chim. Inst. Intern. Chim. Solvay 1926, 91-123; Pulp and Paper 24, 1547-1553 (Dec. 23); 1585-1588 (Dec. 30, 1926). A critical review of the work done to date on double refraction and X-ray investigations of nematic solid colloids, that is, those in which the molecules when in their normal state have one axis oriented in a common direction, the remaining axe being positioned in all directions, so that the whole behaves as a uniaxial crystal. As the greater portion of the work along these lines has been carried out on cellulose and its derivatives, the article is concerned mainly with them. The author gives the results of his yet unpublished experiments which show that both nitrocellulose and cellulose films have the properties of a uniaxial crystal cut perpendicular to its axis and that whatever be the conditions under which the film is formed (nature of solvent, composition of denitrating bath, thickness of film within limits of 0.004 to 0.4 mm. time of drying), the birefringence remains constant within the experimental error. He concludes that cellulose in a normal condition can be assimilated to a uniaxial crystal and that the biaxial varieties are oriented varieties. He does not consider that the X-ray investigations have contributed additional information of much value to the results obtained either by chemical or by optical geometrical methods as regards the structure of solid colloids in general, and more particularly of cellulose.—A.P.-C.

Oxycellulose and the Action of Permanganates on Cotton Cellulose. Harold Hibbert and John L. Parsons. Bull. Soc. Ind. Mulhouse 92, 572-602 (Oct.-Nov. 1926). The percentage loss resulting from the systematic oxidation of cotton cellulose by neutral solution of potassium, magnesium and barium permanganates, using 0.03 to 2.00 atoms of oxygen per $C_6H_{10}O_5$ unit, is approximately proportional to the quantity of oxidizing agent used, and in general is independent of the nature of the permanganate. Oxidation is always accompanied by the formation of carbon dioxide in varying amounts and probably also by the formation of soluble degradation products which were not examined. The effective losses are from 56 to 60 per cent higher than would be theoretically expected admitting that the only products of oxidation are carbon dioixde and water. The properties of the oxidized cellulose (oxycellulose) depend to a large extent on the degree of deterioration of the fibrous structure, that is, on the extent to the surface which has been deteriorated. It is evident from the furfural and copper number deteriorations that the oxycelluloses examined contained only small percentages of constituents capable of yielding furfural (similar to pentosans or to derivatives of glucoronic acid) or of constituents containing reducing aldehydic and ketonic functions. The solubility of oxycellulose in sodium hydroxide cannot be considered as a measure of its acidity (free carboxyl groups) but is due to the combined effects of salt formation and of a peptizing action of the alkali. The chemical nature and quantity of acid constituents in oxycellulose are at present unknown. It is shown experimentally that the solubility in caustic soda of a given oxycellulose increases with the concentration of the reagent; the portion dissolved is incompletely precipitated by acids. This type of solution characterizes a variation in the colloidal state of the oxycellulose. The solubility in alkalies of a degraded cellulose cannot be considered as a criterion of its purity or of its homogeneity. Oxidation of cotton cellulose by neutral permanganate solution can be considered as a typical reaction in a heterogeneous system. Oxycellulose can be considered as a mixture of unmodified or slightly modified (depolymerized) cellulose containing small quantities of oxidation products which exist in various states of degradation and which are essentially acid and non-reducing. Bibliography of 29 references.—A.P.-C.

Section of the
COST ASSOCIATION OF THE PAPER INDUSTRY
Affiliated with
THE AMERICAN PAPER AND PULP ASSOCIATION
Conducted by THOS. J. BURKE, C.A., Sec-Treas

Cost Accounting Practice With Special Reference To Machine Hour Rate*

By Clinton H. Scovill[1]

(Continued from last week)

Discussion

PRESIDENT BULLARD: Mr. Scovell has given us a very interesting paper, and I thank him on behalf of the Convention. He has also suggested that we cross-examine him on this subject. I know that he would welcome any discussion that you wish to bring up; so you can be quite free with your remarks or questions. We have plenty of time at our disposal for this purpose.

Selling Price of Goods

GEORGE I. ALDEN, Norton Grinding Co., Worcester, Mass.: I suppose that one object of cost accounting is adjusting the selling price of your goods. Of course, where you do a jobbing business this matter of keeping the burden on the separate machines is quite an important one; but what you do you do with the unearned burden? You say that the unearned burden of the machine goes in with the cost of the product. What do you do with the unearned burden in fixing the selling price of your product is one question I would like to ask. Another object, it seems to me, of a cost accounting system, is to learn where your losses are and to try and keep up the efficiency of each one of your departments; but if you are simply manufacturing a product like lathes, planers, or shapers, a knowledge of all these details of the cost in each department and the unearned burden would not affect your profits at the end of the year, unless the details help you to get your cost less and manage your factory better. Of course, if you are doing a jobbing business it is quite unfair to charge one man the same price for work on a large, expensive machine as you charge another man for work which does not require as expensive a machine. But I think so far as the cost system is of value, it must be so in helping you to reduce your real cost, which to my mind is its principal object. Another of its objects is to enable you to fix your prices so that you will know what your profits are.

I want to say in regard to the matter of charging interest, I know there is quite a difference in practice in regard to charging interest on your original investment as a part of your cost. It seems to me that there are two ways of looking at that. I presume that the way the matter was presented in the paper is correct—I think it is, in a sense. I did not hear anything said about where dividends come in in this cost accounting; but we have all got to acknowledge that under the system recommended when we get any dividends or so-called profits they will be absolutely over and above the interest on the investment. Dividends are not something to pay you interest on your investment, but they are "velvet," so to speak. I suppose a socialist might object to that view of it, but I do not object to it.

Crux of the Problem

MR. SCOVELL: I think the relation of the cost of manufacture to the selling price is the very crux of the whole problem. If your production is rather slack, the profit is not very large, and the apparent costs according to the old method are distressingly high. That is usually due to a trade condition which would not give you any warrant for making a corresponding boost in the price of your product; in other words, you are perfectly sure that you cannot load on to your customer any cost of the inefficiency of your own plant. You have to sell your machines in competition with all other competing manufacturers and you have to make a price which represents in the long run efficient manufacture. Under such circumstances you will want to know the real manufacturing cost as accurately as possible. If an order comes along for twenty machines of a certain type, you want to know how much additional expense you will incur to manufacture them, so that you may wisely decide to take the order or leave it.

When you start that order through the shop it means purchases of castings, unless you have your own foundry, and it involves from one to a dozen machine operations on each part; and what you want, gentlemen, is the actual cost. Most manufacturers measure out the labor cost with considerable accuracy, and if you can calculate the burden for the equipment used and the proper burden rate for the men at the bench and on the assembly floor, you may figure out the total cost just as definitely as the amounts you pay for wages. If you are so unfortunate, notwithstanding this hypothetical order of twenty machines, that you do not have your shop filled up, you have a burden of unused machines, and I think you should charge that burden direct to profit and loss. It has no relation whatever to the cost of the product manufactured. In other words, the unearned burden has nothing to do with fixing the cost of the product sold.

MR. ALDEN: What do you do with the unearned burden?

MR. SCOVELL: Charge it off to profit and loss.

* From N. A. C. A. Bulletin.
[1] Formerly Senior Partner Scovell, Wellington & Co., Boston, Mass.

MR. ALDEN: What relation does that bear to the price at which you sell your machines?

MR. SCOVELL: I do not see that it has any.

MR. ALDEN: Then you might have an unearned burden at the end of the year which would put you out of business?

MR. SCOVELL: The cost accounting should be so arranged that the unearned burden is known for each department of the business, and as frequently, at least, as once a month. The efficient utilization of the equipment, you will agree, is one of the important aspects of good management. Another point in shop practice which needs to be carefully considered is to see that each operation is done as economically as possible. Among other things, this means putting the work on the proper machine tool, and exact comparisons of this kind cannot be made unless the burden belonging to the respective tools is accurately known and taken into account in comparison with the respective labor costs, in considering one machine or another for the work. In this way, a correct cost accounting practice is an important help to more efficient work and therefore to reduced costs in the shop.

Idle Machines Are Unearned Burden

MR. ALDEN: I agree that if you want to call the cost one thing or another you may. But if you have other expenses, they must come in somewhere before you can intelligently tell for what to sell your product. You spoke of machines lying idle which would mean an unearned burden. I think there are a good many machine builders that are getting a little unearned burden at the present time. But this is not a question of today or tomorrow but largely a question year after year which tells what the product really costs. It is all very easy to say that at the end of the year you are to charge off an unearned burden to profit and loss, but is there going to be anything to balance it at the end of the year? I do not think it makes any difference what each machine does or what the burden of each machine is; all you want to know really is the total. That is all you care for unless this other information can help you manufacture more cheaply. All this segregation of burden is beautiful enough, is very correct and all right, but it seems to me that a great deal of it is of no use, if at the end of the year you are simply going to charge it to profit and loss. It is of no use unless it helps you to manufacture the product more cheaply and keep your shop full. The machine tool business, as I see the way it now runs, has to carry an unearned burden a good deal of the time, and we want to know how we can meet it in some way when we have it. Charging it to profit and loss is all well enough in the accounting, but that is a mere matter of bookkeeping.

There is one thing helpful to me to keep in mind in connection with profits in dull times. I try to know about how much productive labor I have got to carry in the shop that the product of this productive labor may bring enough to pay expenses. When I get below that amount of productive labor I know that I am losing money. When I keep above that amount I am pretty sure that I will sell the product some time and that I will not be a loser. So that while it is all right to keep this accounting system, I think regarding unearned burden you have to know about what it is going to average, or you will not know how much you may have to charge to profit and loss at the end of the year.

A Practical Aspect of the Matter

MR. SCOVELL: I see there is a practical aspect of this matter of which I did not make sufficient recognition. If you conceive of your industry as one that is inevitably subject to such variations, you have to fix the price of your machines high enough so that the margin of profit between cost, as I have defined it, and the selling price will give you a surplus out of which the bad experience and unearned burden of your succeeding years can be provided for. It is necessary to qualify my remark that the unearned burden had nothing to do with fixing the price of the machine with this perfectly obvious explanation, otherwise I will not do justice to the questioner or myself.

Reference was made to dividends, and my explanation is that interest on investment should be charged into cost and credited to the current profit and loss account, and is available for dividends unless there are offsetting charges from other sources (e.g., product sold at a loss or unearned burden). It is essential to distinguish between the real burden used in making the product and the unearned burden due to idle equipment. When you get into a sharply competitive market it seems to me that that is the only practical theory to go on, so that you may know at just what price you can afford to take an order.

Perhaps you may say you do not care to enter into that kind of competition, but even if you do not get enough on an order to carry all the burden which belongs to it, it may be desirable to take that order if you can get back all the direct labor and material cost which you must pay out of pocket to make it, and part of the burden, which otherwise goes on absolutely unutilized. Do I make that point perfectly clear? It seems to me that is of tremendous practical importance.

My questioner made another reference for which I thank him. Experience shows over and over again that when the bookkeeping according to the usual plan shows an apparent rising burden as production falls off, it is recognized as an unhealthy tendency, but it is not human nature for you to get after that condition and make the plans to correct it with anywhere near the energy you would if your accounting showed exactly *how much* the loss was from month to month. Nothing brings that home so definitely as dollars and cents figures representing the manufacturing capacity that you do not use.

Reference was also made to the value of a cost system in helping a management learn where the losses are and reduce the real costs in the shops. In that respect a good cost system is like a recording instrument which reports facts for the guidance of those in charge. The cost reports should cover the right kind of information, and it is especially important that it all should be very promptly available.

When a cost accounting practice meets these two tests, the active manager will naturally use it extensively to secure the greater economy of production which you are all aiming at.

Advantage of the Knowledge

MR. ALDEN: When you have found this $13,400 burden, just what do you do? I mean of what advantage is the knowledge?

MR. SCOVELL: Under such circumstances you are a good deal like the man who has consulted a physician and is advised that he must get more sleep or must move to another climate. It is a practical matter. It is not for your physician to tell you how you are to go about getting more sleep, or just what plan you can adopt to move to Colorado; that is for your family and yourself to consider. So it is here when the accountant is calling shop matters to your attention, especially when you get the information every month; it is up to you as a practical business man to decide what you should do.

MR. ALDEN: It seems to me that your cost system is the answer, that it will tell you pretty nearly so that you can go right to the source where the loss seems to be the greatest, and try to remedy it. But the separation of the items does not appear to me as of any particular value except to call attention to the aggregate loss; but the whole cost system itself enables you to keep track each and every month of where the cost of this or that part of the work is rising.

MR. SCOVELL: When you say that the separation does not appeal to you I am reminded of a murder trial now going on in Massachusetts. The victim is said to have died from arsenical poisoning. How are the jury to know that, or how many grains of arsenic were found in the man's stomach unless they have recourse to some laboratory method to ascertain it? So you must rely on laboratory methods in order to determine the facts.

PRESIDENT BULLARD: Some two or three years ago, in discussing this same problem with a prominent machine tool manufacturer, he told me that he had created a reserve fund to take care

of this unearned burden. During the good times he had an overhead charge, which we will call one hundred per cent normally; but he said that he applied an extra ten or fifteen per cent regularly on his product during the prosperous times when his plant was running at full capacity, and from it set aside a reserve which enabled him to absorb the unearned burden during the dull times.

Now this seemed to me to be a very wise provision. The only difficulty that I see in applying it would be that it would increase our price ten or fifteen per cent during the good times, and it is a question whether our product would stand it, whether the market would absorb our product at the increased price. But it is a matter of averages in the machine tool business, and we must in some way provide during the prosperous times which we sometimes have for the inevitably dull times which are coming; and our profits would have to be sufficient during the good times to do it.

As I understand it, Mr. Scovell's method of overcoming our difficulties by his cost system is simply to point out to us our weakness through so keeping the cost that we can intelligently create a sufficient reserve during the good times when it is possible to do it in order that, when the dull times come, we can have the reserve to fall back on and feel that we can absorb our unearned burden thereby. This reserve would be in the profit and loss account whether you had kept a record of it or not. It would be desirable, I would say, to know that it is there. Now what is to put it there? It seems to me that the only answer is increased prices during the good times.

Is there any further discussion of this subject?

R. S. Reed, Francis Reed Company, Worcester, Mass.: You spoke of increasing the price perhaps fifteen per cent during good times?

President Bullard: That was merely a suggestion, not an absolute figure.

Mr. Reed: In case you do that would it then follow that you would establish a lower price when business was dull?

President Bullard: The increased price might permit of that when it was necessary.

Mr. Reed: Is that a question of business policy?

President Bullard: It is not a question of policy, it is a question of accounting. As I see it, increasing the price during good times would not necessarily mean to decrease the price in dull times. It would merely mean that by increasing the price we would create a reserve which we could draw on during dull times. There is no justification in dull times for reduction of prices so far as cost is concerned.

Mr. Thayer: There are a number of machines that might be put through not necessarily at a profit but in order to take up part of the overhead charges. How to maintain your organization during dull periods is a pretty important question in a large plant. Sometimes a considerable proportion of the labor is maintained at an actual loss, simply to hold it. It would be interesting to know about how much we could afford to pay or how much we were actually paying for maintaining that labor.

Mr. Scovell: The remark that the gentleman has just made suggests something else. I notice that some of you are advertising to your prospective customers that they can save money by using this or that machine which you make. How can your customers intelligently make a comparison between your machine and any other unless they are to go at it in just about the way that I have described?

A Member: Suppose that a certain manufacturer makes a hundred machines one year, and in the following year business is such that he sells just about one hundred machines. How would that affect the cost of those machines, inasmuch as they were not manufactured within the year when they were sold?

An Accounting Problem

Mr. Scovell: That is an accounting problem. As I see it there is no profit on those one hundred machines until they have been actually sold. I should fix my attention on the year in which they were made in order to determine their cost, and the unearned burden, if there was any, in the shop during that period. I should not be interested at all (in so far as cost of those machines was concerned) in the cost of the shop during the period in which they were sold. If you fill up a factory with finished machines they would be taken in stock at their cost. In the following year you may make a profit by a favorable sale of machines built the previous year and carried over, with or without profitable operation of the year which is then current. In other words, you have one hundred machines made in 1912 carried over into 1913, and you sell them at a profit. That is profit which belongs to 1913; but it is not related to the shop operation in 1913. If, as a question of manufacturing policy to keep up shop organization in 1912, you thought it wise to make this product ahead, let us hope your judgment has been justified in 1913. But you have a new problem as to what you will do with the shop in 1913.

Buildings, Etc., Part of the Burden

E. T. Hendee, Joseph T. Ryerson & Son, Chicago: I notice that on your diagram you show an interest charge on the investment covering buildings, machinery, fixtures, etc., as part of the burden. It has always been our custom to charge, in addition to that, interest on the money used in carrying on the business, that is to say interest on outstanding accounts, stock, etc., and it would seem to me that this charge could be considered just as legitimate as would interest on the building investment.

Mr. Scovell: I agree with you.

Mr. Hendee: You didn't say that.

Mr. Scovell: As I tried to have some reasonable limits to my paper, I did not discuss the cost of selling. You may be in a trade where your terms are thirty days; with another man the terms in vogue are ninety days. The beef wholesalers collect once a week, and a restaurant every meal. Now a business which collects once a week is different from a business which carries a line of credit for ninety days, and one of the items of cost of the ninety day business is undoubtedly the capital tied up in the outstanding accounts, but this is not a manufacturing cost. If you have in stock one hundred machines that cost you one hundred dollars apiece, then you have $10,000 tied up in finished stock. If you carry a similar amount of stock in finished parts, that is also one of the costs of doing your business, and you should make a charge accordingly against the selling expenses.

E. R. Norris, Westinghouse E. & M. Co., Pittsburgh, Pa.: I would like to ask the gentleman a question. During slack time, time of depression, when you have a great many machines idle, possibly machines doing a similar class of work but with different overhead—for instance, one machine with an overhead of one dollar and another with an overhead of fifty cents—would you recommend using the cheap machine and letting the high-priced overhead machine stand idle? In other words, it might be possible to do the work in less time on the high-priced machine which would naturally carry a larger overhead, but it would be better to use the machine with less overhead from a cost standpoint; now which would you use?

Mr. Scovell: That is a decidelly practical question. It is a great deal like choosing an automobile for a trip on Sunday afternoon, whether you are going to use one that you bought at a bargain for $1,250, or another machine that cost you $4,000. Theoretically it costs you more to run a higher priced machine; but if you have both machines idle it is a practical shop problem. The actual running time required for the job should decide the question as to whether you would use one or the other. The choice might become unimportant from the point of view of cost, it might be altogether a question of expediency. You might be whitewashing that part of the shop and would not want to work over the tool.

Adding Cost to Overhead Burden

James N. Heald, Heald Machine Company, Worcester, Mass.: Probably the answer to that, in the case of regular manufacturing where you didn't have to guess quickly, would be arrived at by

MR. ALDEN: What relation does that bear to the price at which you sell your machines?

MR. SCOVELL: I do not see that it has any.

MR. ALDEN: Then you might have an unearned burden at the end of the year which would put you out of business?

MR. SCOVELL: The cost accounting should be so arranged that the unearned burden is known for each department of the business, and as frequently, at least, as once a month. The efficient utilization of the equipment, you will agree, is one of the important aspects of good management. Another point in shop practice which needs to be carefully considered is to see that each operation is done as economically as possible. Among other things, this means putting the work on the proper machine tool, and exact comparisons of this kind cannot be made unless the burden belonging to the respective tools is accurately known and taken into account in comparison with the respective labor costs, in considering one machine or another for the work. In this way, a correct cost accounting practice is an important help to more efficient work and therefore to reduced costs in the shop.

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Mr. Scovell: I agree with you.

Mr. Hendee: You didn't say that.

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Adding Cost to Overhead Burden

James N. Heald, Heald Machine Company, Worcester, Mass.: Probably the answer to that, in the case of regular manufacturing where you didn't have to guess quickly, would be arrived at by

adding the direct labor cost to the overhead burden which comes on that machine. For instance, the machine having the lower burden might be an older type of machine that would increase the number of hours of labor required so that the cost would be higher than with the machine with the more expensive rate, but which would cut the time considerably owing to its increased efficiency. The true answer is the sum of those two elements, in any case.

With regard to the remarks made by my friend, Mr. Alden, who opened the discussion in regard to the selling price as compared to the cost, I am inclined to think that while the cost system is the basis, the selling price may not be related so very closely to the cost. Of course, we all know that there are lots of elements besides manufacturing cost to be considered. There is a good deal of money spent in selling, for advertising, direct representation, commissions to dealers, and traveling expenses, all of which have a great deal to do with fixing upon the selling prices.

Then the progressiveness of a concern makes a difference. If you are pushing direct representation with demonstrators and taking large space in the trade papers, the selling cost must be affected correspondingly.

Furthermore, if you are determined to be in the lead and to make continuous advances and improvements in your product, bring out new designs and add new lines, and still wish to pay your bills and earn dividends, you have got to have your selling price high enough to allow for this. The selling price is, therefore, made up of a larger number of elements. I think the gentleman who opened the discussion desired to make the point, that it did not particularly matter to him whether he had an exact division between the earned burden and the unearned burden provided he knew what it was costing him during the year to produce the goods, and he was interested in getting the selling price high enough to be sure that those expense charges were all paid. But the writer of the paper desires to show that this division becomes valuable in correctly showing the true amount of use of any given kind of equipment during a certain period, and if, for instance, there should be a flurry in the lathe department so that apparently more lathes are needed, it is mighty convenient to be able to look back and see that for a long time there have been many of them standing idle, so that a little overtime work or some similar temporary scheme would care for the present need, and the purchase of additional machines is really unnecessary.

Therefore a correct and scientific balancing-up of equipment is made easy, which is an essential feature of official and economical management.

MR. SCOVELL: I appreciate very much, gentlemen, the interest you have shown in this subject. I am pleased that so many have taken part in the discussion.

Present Trends in Cost Accounting*

When you ask me to comment on the trend in factory cost accounting, my thoughts naturally go back over the twenty years in which this subject has been of direct interest to me. At the beginning of that period only two kinds of cost accounting were in general use.

The most common form was process or average costs, which have survived to a considerable extent to this day. Under certain conditions process costs are still serving their purpose fairly well, with one important exception which I shall mention later.

The other kind of costs, then being secured by some painstaking manufacturers, were accumulated charges on individual jobs or individual orders. Job costs merely tally up the items of cost which go into a particular manufactured article.

Found Extreme Expense Was Not Warranted

In the first twenty years of this century thousands of manufacturers installed job-cost systems, which were a considerable improvement over their previous cost practice. In a good many cases, however, they found that the clerical expenses involved in keeping up a job cost system was not warranted by the results secured, and a good deal of cost accounting undertaken on this basis was given up, sometimes without very much regret. Job costs still have a limited application and are of great importance where they are really needed, as for a contractor or anyone making special orders, although in some such cases the estimate is accurately determined and is the basis for the sale.

These determined efforts to secure better costs served in many cases, however, to show the interested executives that whatever they might accomplish towards greater accuracy in the application of material and labor costs would amount to very little unless they could get a comparable accuracy in the analysis, distribution, and application of burden. Although the importance of burden as a factor in cost is now generally recognized, there are still thousands of manufacturing plants in which the burden analysis is not yet adequate, and a great deal of work in this particular field remains to be done.

Burden analysis is really the budgeting of those operating expenses of a plant which are not included in the outlay for product materials and for direct labor. It is an important part of the general movement for budgeting in business, and will probably receive continued attention.

Significant Recent Developments

Moreover, this idea of budgeting business expense, with particular reference to burden analysis, is an important part of the most significant recent developments in the whole field of cost accounting, namely, the determination of cost standards, made up of material, labor, and burden. A cost standard, defined in simplest terms, is merely a specification of materials, the work to be done thereon, and a schedule of the cost of these items of material and labor one by one.

Manufacturers are only beginning to appreciate the significance of standard costs, and beyond any doubt next year and each year thereafter will see more and more attention given to standard costs, with a correspondingly better appreciation of their value and significance in management. Material specifications must necessarily be accurately known for any manufactured product. Labor costs are constantly becoming better and better defined, either in the form of piece rates or as unit costs worked out through job analysis. It is only logical that burden analysis should be made precise, so that this third factor of cost may be as accurate as the other two.

New Kind of Executive Control

When standards have been well defined for materials, labor, and burden, it is possible to get a new kind of executive control over costs, and in most cases by very much less clerical effort than is involved in other methods.

Standard costs, furthermore, lend themselves to combination by departments, so that an executive can get a cross section of his factory in terms of cost reduction which is hardly to be attained in any other way. If the results are unsatisfactory, standard costs lend themselves to a further prompt analysis which is extremely useful. No doubt this advantage will be realized by more and more business executives in the near future.

Finally, the difference between average costs and standard costs should be clearly understood. The outstanding weakness of average costs is that they are said to go up when volume goes down, and to go down when volume goes up. Standard costs, on the other hand, absorb designated standard amounts of labor and burden as well as material, and any expense incurred for labor and burden which is not absorbed at the standard rates is a devi-

* From N. A. C. A. Bulletin.

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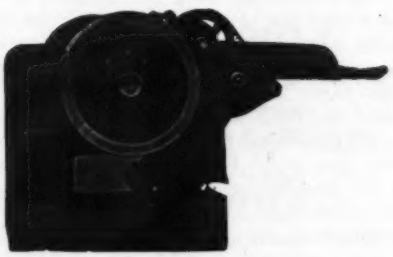

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ation from standards, or an excess, which requires analysis and usually demands executive attention.

To show how standard costs tie in with a budget program in a manufacturing plant, it is far better to say that if a department or a factory has a normal capacity of 10,000 units, for example, and if only 8,500 units are made, the burden capacity for 1,500 units will not be utilized, than it is to say that if only 8,500 units are made, the cost will be higher. As a matter of fact, the cost per unit is no more if only 8,500 units are made, and the outstanding fact is that 15 per cent of the factory capacity is unutilized.

Scientific Analysis of Markets and Sales

This trend of analysis of the elements of manufacturing cost has naturally led to a similar analysis of sales and selling expenses, with a marked tendency in many industries to scientific analysis of market conditions and sales possibilities. Cost of goods sold by lines, and by territories, when linked with market possibilities and a knowledge of manufacturing capacity, round out a co-ordination of cost information that is essential for executive and financial administration.

Throughout all this development there has also come a new appreciation of the importance of organization, and of the training, development, and proper compensation of the individual.

Estate of Robert Gair

Robert Gair, who founded a paper-box business in 1864 which developed into a $4,000,000 corporation, and in which he had continued active as Chairman of the board until his death on July 31, disposed of his estate in a brief will filed last week in the Kings County Surrogate's Court. The amount of his estate has not been determined. It was estimated at more than $2,000,000. In the petition for probate filed by John S. Schmidt of Brower & Brower, attorneys for the estate, it was stated that the personal property was more than $10,000 and that the amount of the realty was unknown.

His widow, Mrs. Emma Eyre Gair, receives $5,000, in lieu of dower rights. Mr. Gair, the attorney said, had previously made ample provision for his wife. His will directed that the remainder of his residuary estate be divided in equal shares among his surviving children. There are four daughters and two sons living and the estate, therefore, will be divided in six shares.

These children are: Mrs. Jessie Gair Sweeney, 815 Park avenue; Mrs. Lucy Gair Gill, South Orange, N. J.; M. Elizabeth and E. Florence Gair, who live with their mother at 120 New York avenue; George W. Gair, who is President and general manager of the Robert Gair Company, and Robert Gair, Jr., of Syosset, L. I., a vice president of the same company.

Mr. Gair, who died on his eighty-eighth birthday had conducted his business in the manufacturing corporation mentioned and in the Gair Realty Corporation, in which his wife and two of his daughters, E. Florence and M. Elizabeth L. Gair, are directors. The two sons and a nephew, Lawrence Beattie, were named as executors of the estate.

National Paper Trade to Meet October 2-5

CHICAGO, August 8, 1927.—N. A. Schoenbeucher, of the National Paper Trades Association announces the meeting of this organization will be held at the Congress Hotel October 2-3-4-5 in Chicago. Mr. Schoenbeucher stated that although definite plans have been practically formulated their announcement would be held and released at a later date with a complete list of committees and members. The committee and board meetings will be held Sunday, October 2, and Monday, October 3. The general meetings on October 4-5 will be devoted to the Fine and Wrapping paper divisions and will be especially interesting.

The "Net Profit Control Plan" will undoubtedly be one of the principal topics of discussion during this meeting.

Charles Ray Buys Rogers Mfg. Co.

[FROM OUR REGULAR CORRESPONDENT]

HARTFORD, Conn., August 15, 1927.—The Rogers Paper Manufacturing company, founded by the late Henry E. Rogers in 1832 and controlled by that family ever since, last week was purchased by a new corporation, headed by Charles Ray, for several years general manager of the company and one of the best known paper manufacturers in the country.

Charles Ray, a native of Troy, N. Y., celebrated his silver anniversary as a paper manufacturer on July 24 this year. He originally entered the business with the John A. Manning Paper Company of Troy. Seven years ago he came to South Manchester to become general manager for Miss Gertrude Rogers, only survivor of the Rogers family and owner of the Rogers Manufacturing company. It is said that he came here only on condition that when Miss Rogers decided to retire, he should be given the first right to purchase, and several years ago he secured an option on the plant.

The Rogers Paper Manufacturing company had continued all these years with the original capitalization of $50,000. The new company, a Massachusetts corporation, starts with $450,000 and an unusually strong array of connections. All of the stock has been subscribed.

Since coming here, Mr. Ray has constantly made repairs and improvements in both of the local plants until to-day they are in excellent condition. The firm employs about a hundred men men and is working twenty-four hours a day, or in two shifts. The firm specializes in press board and lists among its customers many of the largest companies in the world. Business is not only excellent to-day, but the outlook is unusually bright. Mr. Ray said he has orders on file to-day for the next three months.

In addition to developing the Roger Paper Manufacturing Company to its high point of success, Mr. Ray has found time to be a motivating factor in many civic movements in town. He organized the Men"s club at the Center Congregational church and made it a real factor in the town's' life. He was one of the enthusiasts for a local Kiwanis club and not only served as president of the local club but is now a district trustee. He has also served as a director of the Manchester chamber of commerce and in every activtiy has been considered one of the live wires of Manchester.

It is understood Miss Rogers, who now withdraws from the company shortly plans a long vacation. When Henry E. Rogers, founder of the company, died, his son, Knight E. Rogers took over the management of the plant and continued in charge until his death some years ago. His sister, Miss Gertrude Rogers, then assumed charge of the plant and she practically conducted the business alone until she persuaded Mr. Ray that there was a big future for him here.

Mr. Ray said that there will be no change in the personnel at the plants. Mr. Ray brought Thomas H. Johnson, present plant superintendent, here from Troy several years ago and he will continue in this capacity. For several years Mr. Ray has not only worked to build up the business, but has also done much to improve the appearance around the mills, until to-day the property is attractive and a real asset to the town.

Wisconsin Div. of Cost Association To Meet

A meeting of the Wisconsin Local Division of the Cost Association of the Paper Industry, will be held at Grand Island, Munising, Mich., on Saturday, August 27, 1927.

Inasmuch as special provision must be made for each one present, the secretary requests that those requiring reservations notify him in care of the Northern Paper Mills, Green Bay, Wis., as soon as possible. He will forward the reservations to the proper agency at Munsing.

An interesting meeting has been arranged, so it is hoped a representative gathering of cost men will attend.

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Philadelphia Paper Mfg. Co., Phila., three orders, total ..... 2400 H.P.
Jessup & Moore Paper Co., Phila., four orders, total ..... 4750 H.P.
Ontario Paper Co., Ltd.
For Daily Newspaper Co., North Tonawanda, N. Y. ..... 2034 H.P.
Filer Fibre Company, Filer City, Mich. ..... 1500 H.P.
John Lang Paper Co., Philadelphia, Pa..... 416 H.P.
Bayless Manufacturing Corp., Austin, Pa..... 1300 H.P.
Northern Board & Paper Co., San Francisco, Cal., two orders, total ..... 400 H.P.
Crown Williamette Paper Co., San Francisco, Cal., two orders, total ..... 750 H.P.
Delaware Hard Fibre Co., Wilmington, Del., two orders, total ..... 920 H.P.
Kieckhefer Container Co., Delair, N. J. ..... 1800 H.P.

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Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING AUGUST 13, 1927

SUMMARY

Cigarette paper	342 cs.
Wall paper	20 bls., 12 cs.
Paper hangings	5 bls., 4 cs.
News print	9,757 rolls
Printing paper	61 bls., 84 cs.
Wrapping paper	28 pkgs., 50 rolls, 201 bls., 43 cs.
Packing paper	3 bls., 5 cs.
Gold coated paper	2 cs.
Surface coated paper	302 cs.
Metal paper	140 cs.
Tissue paper	5 cs.
Writing paper and envelopes	14 cs.
Writing paper	5 cs.
Filter paper	23 cs.
Drawing paper	107 cs.
Gallic paper	2 cs.
Stencil paper	57 cs.
Cover paper	7 cs.
Tracing paper	10 cs.
Photo paper	4 cs.
Parchment paper	10 pkgs.
Basic paper	50 cs.
Decalcomania paper	4 cs.
Straw board	1,061 rolls
Straw pulp board	229 rolls
Miscellaneous paper	81 pkgs., 720 rolls, 85 bls., 184 cs.

CIGARETTE PAPER

British American Tobacco Co., Scythia, Liverpool, 5 cs.
P. J. Schweitzer, Pres. Wilson, Marseilles, 81 cs.
Standard Products Corp., Rochambeau, Havre, 126 cs.
Standard Products Corp., McKeesport, Havre, 120 cs.
The Surbrug Co., McKeesport, Havre, 10 cs.

WALL PAPER

F. J. Emmerich, A. Ballin, Hamburg, 2 bls., 2 cs.
Globe Shipping Co., A. Ballin, Hamburg, 2 bls.
F. Blank Co., A. Ballin, Hamburg, 3 cs.
W. H. S. Lloyd & Co., Scythia, Liverpool, 5 cs.
F. J. Emmerich, Carmania, London, 1 ble.
F. A. Binder, Seydlitz, Bremen, 15 bls., 2 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Minnetonka, London, 3 cs.
A. C. Dodman, Jr., Inc., Scythia, Liverpool, 5 bls., 1 cs.

NEWS PRINT

Perkins, Goodwin & Co., A. Ballin, Hamburg, 50 rolls.
Brooklyn Times, Corner Brook, Corner Brook, 1,156 rolls.
Clinton Paper Corp., Corner Brook, Corner Brook, 586 rolls.
N. Y. Telegram, Corner Brook, Corner Brook, 5,895 rolls.
Brooklyn News, Corner Brook, Corner Brook, 1,064 rolls.
N. Y. Post, Corner Brook, Corner Brook, 444 rolls.
Bank of Montreal, Corner Brook, Corner Brook, 188 rolls.
The Times Co., Gripsholm, Gothenburg, 94 rolls.
Perkins, Goodwin & Co., Berlin, Bremen, 280 rolls.

PRINTING PAPER

E. Dietzgen & Co., A. Ballin, Hamburg, 11 cs.
Heemsoth, Basse & Co., A. Ballin, Hamburg, 13 cs.
Oxford University Press, Scythia, Liverpool, 5 cs.
C. Steiner, Burgerdyk, Rotterdam, 53 cs.
National City Bank, Reliance, Hamburg, 61 bls.
Japan Paper Co., American Farmer, London, 2 cs.

WRAPPING PAPER

F. C. Strype, Delilian, Antwerp, 28 pkgs.
Birn & Wachenheim, Delilian, Antwerp, 17 cs.
C. K. MacAlpine, Gripsholm, Gothenburg, 20 cs.
T. Barrett & Son, Gripsholm, Gothenburg, 94 bls.
H. J. Heintz & Co., Gripsholm, Gothenburg, 7 bls.
E. Dietzgen & Co., Burgerdyk, Rotterdam, 6 cs.
J. P. Heffernan Paper Co., Saugus, Genoa, 50 rolls, 100 bls.

PACKING PAPER

Judson Freight Forwarding Co., A. Ballin, Hamburg, 3 bls.
Haule Wax Paper Manfg. Co., A. Ballin, Hamburg, 5 cs.

GOLD COATED PAPER

Cohen & Mann, Seydlitz, Bremen, 2 cs.

SURFACE COATED PAPER

Whiting & Patterson Co., Inc., A. Ballin, Hamburg, 7 cs.
G. W. Sheldon & Co., A. Ballin, Hamburg, 14 cs.
G. W. Sheldon & Co., Minnetonka, London, 1 cs.
W. von Doorn, Burgerdyk, Rotterdam, 8 cs.
P. C. Zuhlke, Delilian, Antwerp, 199 cs.
Gevaert Co. of America, Delilian, Antwerp, 72 cs.
Globe Shipping Co., Volendam, Rotterdam, 1 cs.

METAL PAPER

Hensel, Bruckman & Lorbacher, A. Ballin, Hamburg, 2 cs.
Hensel, Bruckman & Lorbacher, Berlin, Bremen, 12 cs.

BARYTA COATED PAPER

Globe Shipping Co., Berlin, Bremen, 76 cs.
Globe Shipping Co., Seydlitz, Bremen, 50 cs.

TISSUE PAPER

Meadows, Wye & Co., Scythia, Liverpool, 3 cs.
Iwai & Co., Asuka Maru, Kobe, 2 cs.

WRITING PAPER AND ENVELOPES

Eleto Co., Clara, Trieste, 14 cs.

WRITING PAPER

Globe Shipping Co., Reliance, Hamburg, 2 cs.
R. F. Downing & Co., Mauretania, Southampton, 1 cs.
Coenca Morrison & Co., Rochambeau, Havre, 2 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Caronia, London, 8 cs.
C. Schleicher Schull Co., A. Ballin, Hamburg, 12 cs.
A. Giese & Son, A. Ballin, Hamburg, 1 cs.
Taiyo Trading Co., Asuka Maru, Yokkaichi, 2 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., Caronia, London, 3 cs.
Keuffel & Esser Co., Caronia, London, 3 cs.
International Forwarding Co., Patagonier, Antwerp, 39 cs.
Keuffel & Esser Co., A. Ballin, Hamburg, 61 cs.
C. Steiner, Burgerdyk, Rotterdam, 1 cs.

GALLIC PAPER

Keuffel & Esser Co., Caronia, London, 2 cs.

STENCIL PAPER

Arlac Dry Stencil Co., A. Ballin, Hamburg, 54 cs.
G. W. Sheldon & Co., Minnetonka, London, 1 cs.
Roneo, Ltd., Mauretania, Southampton, 2 cs.

COVER PAPER

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TRACING PAPER

Keuffel & Esser Co., A. Ballin, Hamburg, 10 cs.

PHOTO PAPER

J. J. Gavin, Berlin, Bremen, 4 cs.

PARCHMENT PAPER

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BASIC PAPER

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C. W. Sellers, Seydlitz, Bremen, 4 cs.

STRAW BOARD

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A. Vuyk, Volendam, Rotterdam, 250 rolls.
State Bank, Volendam, Rotterdam, 118 rolls.
Sapulding & Tewksbury, Volendam, Rotterdam, 84 rolls.
Haas Bros., Volendam, Rotterdam, 110 rolls.

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Arkell Safety Bag Co., Gripsholm, Gothenburg, 90 rolls.
J. J. Anderson, Gripsholm, Gothenburg, 1 cs.
E. H. Sergeant & Co., Gripsholm, Gothenburg, 5 cs.
International Forwarding Co., Burgerdyk, Rotterdam, 14 cs.
S. Gilbert, Burgerdyk, Rotterdam, 20 cs.
Perry, Ryer & Co., Caledonia, Glasgow, 45 cs.
Japan Paper Co., G. Verdi, Genoa, 16 cs.
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Japan Paper Co., Pres. Wilson, Marseilles, 10 cs.
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J. C. Robold, Rochambeau, Havre, 10 cs.
Heemsoth, Basse & Co., Volendam, Rotterdam, 81 pkgs.
S. Gilbert, Volendam, Rotterdam, 6 cs.
Zellerbach Paper Co., Volendam, Rotterdam, 27 cs.

RAGS, BAGGINGS, ETC.

New York Trust Co., London Mariner, London, 175 bls. rags.
Garfield National Bank, Isarco, Genoa, 82 bls. cuttings.
Banco Com'l Italiane Trust Co., Isarco, Naples, 48 bls. rags.
E. J. Keller Co., Inc., Isarco, ——, 200 bls. rags.
B. D. Kaplan, Patagonier, Antwerp, 7 bls. rags.
Darmstadt, Scott & Courtney, Pres. Harding, Bremen, 49 bls. cotton waste.
Castle & Overton, Inc., Pres. Harding, Bremen, 62 bls. thread waste.
Castle & Overton, Inc., Pres. Harding, Bremen, 35 bls. rags.
United Waste Co., Pres. Harding, Bremen, 21 bls. thread waste.
United Waste Co., Pres. Harding, Bremen, 9 bls. rags.
General Fiber Co., Pres. Harding, Bremen, 74 bls. rags.
Guaranty Trust Co., Caledonia, Glasgow, 74 bls. paper stock.
E. J. Keller Co., Inc., Celtic, Liverpool, 29 bls. rags.
E. Butterworth & Co., Inc., Balsam, Manchester, 146 bls. paper stock.
Castle & Overton, Inc., Balsam, Manchester, 31 bls. rags.
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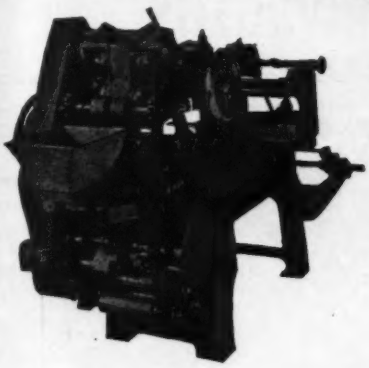
E. Butterworth & Co., Inc., Balsam, Belfast, 38 bls. paper stock.
M. Snedeker Corp., Balsam, Belfast, 96 bls. paper stock.
R. Canovai & Son, Saugus, Naples, 137 bls. rags.
E. J. Keller Co., Inc., Tomalva, Antwerp, 101 bls. linen threads.
E. J. Keller Co., Inc., Tomalva, Antwerp, 20 bls. linen cuttings.
American Over Orient Corp., Asuka Maru, Kobe, 158 bls. rags.
D. M. Hicks, Inc., Asuka Maru, Kobe, 25 bls. rags.
D. M. Hicks, Inc., Asuka Maru, Yokohama, 40 bls. rags.
A. H. Searle, Wytheville, Rotterdam, 13 bls. rags.
E. J. Keller Co., Inc., Wytheville, Rotterdam, 27 bls. thread waste.
Sterling Mill Supply Co., Giulia, Naples, 90 bls. rags.
V. Galaup, Ryfuku Maru, Leghorn, 43 bls. rags.
Standard Products Corp., Cabo Villano, Genoa, 85 bls. canvas.
R. Canovai & Son, Cabo Villano, Marseilles, 222 bls. rags.
Salomon Bros. & Co., McKeesport, Havre, 7 bls. rags.
B. D. Kaplan, McKeesport, Havre, 32 bls. rags.
V. Galaup, McKeesport, Havre, 48 bls. new cuttings.
The Barrett Co., McKeesport, Dunkirk, 93 bls. rags.
E. A. Stone, McKeesport, Dunkirk, 91 bls. rags.
Castle & Overton, Inc., McKeesport, Dunkirk, 30 bls. rags.
Salomon Bros. & Co., McKeesport, Dunkirk, 60 bls. thread waste.
National City Bank, Rochambeau, Havre, 220 bls. bagging.
A. H. Searle, Carmania, London, 23 bls. rags.
Bulkley, Dunton & Co., Seydlitz, ——, 65 bls. rags.
American Over Orient Corp., Hamburg Maru, Kobe, 25 bls. rags.

(*Continued on page 68*)



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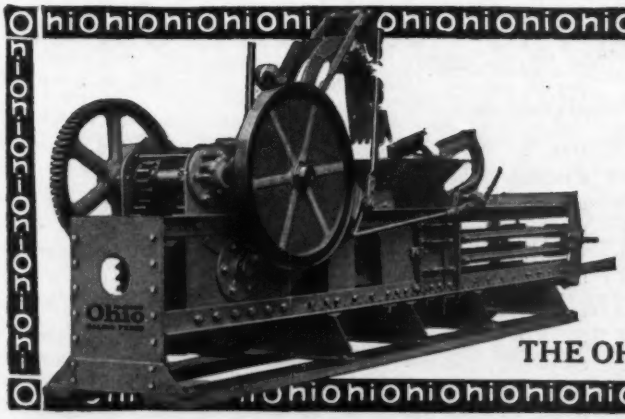

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Imports of Paper and Paper Stock

(*Continued from page 66*)

Darmstadt, Scott & Courtney, Pipestone County, Havre, 69 bls. bagging.
Mutnick Bros., Pipestone County, Havre, 36 bls. rags.
Castle & Overton, Inc., Pipestone County, Havre, 135 bls. rags.
E. J. Keller Co., Inc., Pipestone County, Havre, 129 bls. rags.
Chase National Bank, Pipestone County, Havre, 113 bls. rags.
Castle & Overton, Inc., Caronia, England, 3 bls. rags.
Castle & Overton, Inc., Manuel Calvo, Spain, 510 bls. rags.
E. J. Keller Co., Inc., Minnetonka, London, 56 bls. mixed strings.
Robert Blank, G. Washington, Bremen, 37 bls. rags.

OLD ROPE

N. E. Berzen, A. Ballin, Hamburg, 59 coils.
Brown Bros. & Co., Burgerdyk, Rotterdam, 220 coils.
Bulkley, Dunton & Co., Burgerdyk, ——, 7 bls.
International Purchasing Co., Cabo Ortegal, Coruna, 36 bls.
American Exchange Irving Trust Co., Rochambeau, Havre, 46 coils.
Brown Bros. & Co., Volendam, Rotterdam, 167 coils.
Bulkley, Dunton & Co., Volendam, ——, 122 bls.

MANILA ROPE

Ellermans' Wilson Line, Minnetonka, London, 40 coils.

CASEIN

T. M. Duche & Sons, Castillian Prince, Buenos Aires, 417 bags, 25,020 kilos.
T. M. Duche & Sons, Vauban, Buenos Aires, 250 bags.
A. Klipstein & Co., McKeesport, Havre, 179 bags, 15,020 kilos.

WOOD PULP

M. Gottesman & Co., Inc., Clara, Sebenico, 5,600 bls. wood pulp.
E. M. Sergeant & Co., Gripsholm, Gothenburg, 718 bls. sulphite.
E. M. Sergeant & Co., Gripsholm, Gothenburg, 299 bls. dry soda pulp.
Buck, Kiaer & Co., Inc., Gripsholm, Gothenburg, 400 bls. wood pulp.
Castle & Overton, Inc., Wytheville, Rotterdam, 174 bls. wood pulp, 27 tons.
American Exchange Irving Trust Co., Giulia, Trieste, 686 bls. wood pulp.
M. Gottesman & Co., Inc., Volendam, Rotterdam, 350 bls. wood pulp.
Polarus Shipping Co., Inc., Sekstant, Sonora, 1,075 cords pulp wood.

WOOD PULP WADDING

Birn & Wachenheim, Burgerdyk, Rotterdam, 50 bls., 10 cs.

WOOD FLOUR

A. Kramer & Co., Burgerdyk, Rotterdam, 300 bags.
A. Kramer & Co., Wytheville, Rotterdam, 500 bags, 25,000 ks.

WOOD PULP BOARDS

C. K. MacAlpine & Co., Gripsholm, Gothenburg, 9 bls.
Lagerloef Trading Co., Berlin, Bremen, 239 bls.

NEW ORLEANS IMPORTS

WEEK ENDING AUGUST 13, 1927

E. J. Keller Co., Inc., Kaga Maru, ——, 400 bls. gunny.
E. J. Keller Co., Inc., Rhine Maru, ——, 50 bls. rags.

CHARLESTON IMPORTS

WEEK ENDING AUGUST 13, 1927

E. J. Keller Co., Inc., Talthibius, ——, 200 bls. gunny.
E. J. Keller Co., Inc., Tulsa, Antwerp, 102 bls. bagging.

BALTIMORE IMPORTS

WEEK ENDING AUGUST 13, 1927

A. H. Searle, Inc., Balsam, Belfast, 113 bls. rags.
Anglo South American Trust Co., Saugus, Palermo, 180 bls. rags.
Acer & Co., Ansaldo San Giorgio Terza, Port Alice, 4,400 bls. sulphite, 624 tons.
Robert Blank, Liberty Land, Naples, 132 bls. rags.
M. Gottesman & Co., Inc., Wanja, Stockholm, 2,700 bls. wood pulp.
Castle & Overton, Inc., Westerner, Holland, 1,080 bls. wood pulp.
E. J. Keller Co., Inc., Binnendyk, Karlsruhe, 1,050 bls. wood pulp.
E. J. Keller Co., Inc., Kiel, Hamburg, 117 bls. rag pulp.

PHILADELPHIA IMPORTS

WEEK ENDING AUGUST 13, 1927

Tradesman's National Bank, Isarco, Genoa, 119 bls. rags.
Robert Blank, Isarco, Naples, 182 bls. rags.
R. Canovai & Son, Saugus, Leghorn, 207 bls.
Castle & Overton, Inc., Tomalva, Antwerp, 216 bls. rags.
G. M. Graves & Co., Tomalva, Antwerp, 59 bls. rags.
M. Friedman, Tomalva, Antwerp, 95 bls. rags.
Brown Bros. & Co., Tomalva, Antwerp, 47 bls. rags.
Darmstadt, Scott & Courtney, Cabo Villano, Marseilles, 201 bls. rags.
Castle & Overton, Inc., Cabo Villano, Marseilles, 110 bls. rags.
D. I. Murphy, Cabo Villano, Barcelona, 72 bls. rags.
E. J. Keller Co., Inc., Cabo Villano, Barcelona, 90 bls. rags.
S. Birkenstein & Son, Cabo Villano, Barcelona, 102 bls. rags.
Castle & Overton, Inc., Cabo Villano, Valencia, 208 bls. rags.
Tradesman's National Bank, Cabo Villano, Leghorn, 90 bls. rags.
R. Canovai & Son, Cabo Villano, Leghorn, 227 bls. rags.
Stephano Bros., McKeesport, Havre, 5 cs. cigarette paper.
E. A. Stone, McKeesport, Havre, 204 bls. rags.
Castle & Overton, Inc., McKeesport, Havre, 17 bls. rags.
Castle & Overton, Inc., McKeesport, Havre, 57 bls. new cuttings.
Castle & Overton, Inc., McKeesport, Dunkirk, 496 bls. rags.
E. A. Stone, McKeesport, Dunkirk, 246 bls. rags.
Salomon Bros. & Co., McKeesport, Dunkirk, 260 bls. rags.
E. J. Keller Co., Inc., McKeesport, Dunkirk, 41 bls. rags.
A. Hurst & Co., McKeesport, Dunkirk, 100 bls. rags.
Atlas Waste Manfg. Co., McKeesport, Dunkirk, 110 bls. rags.
E. J. Keller Co., Inc., Ohioan, ——, 50 bls. rags.
Castle & Overton, Inc., Liberty, France, 375 bls. rags.
Buck, Kiaer & Co., Inc., Arkansas, Oslo, 400 bls. sulphite.

BOSTON IMPORTS

WEEK ENDING AUGUST 13, 1927

T. M. Duche & Sons, Castillian Prince, Buenos Aires, 417 bags casein, 25,020 ks.
Upson Walton Co., Pres. Wilson, Manila, 122 coils rope, 290 pkgs.
Forte Moran Co., Pipestone County, Dunkirk, 46 bls. rags.
E. Butterworth & Co., Inc., Pipestone County, Dunkirk, 72 bls. rags.
E. J. Keller Co., Inc., Pipestone County, Dunkirk, 102 bls. rags.
V. Galaup, Pipestone County, Dunkirk, 197 bls. rags.
Innes Speiden & Co., Pipestone County, Havre, 250 bags casein, 25,005 ks.
National Shawmut Bank, Pipestone County, Havre, 90 bls. rags.
Castle & Overton, Inc., Pipestone County, Havre, 299 bls. rags.
E. A. Stone, Pipestone County, Havre, 55 bls. rags.
V. Galaup, Pipestone County, Havre, 372 bls. rags.
E. J. Keller Co., Inc., Pipestone County, Havre, 14 bls. rags.
Buck, Kiaer & Co., Inc., Arkansas, Oslo, 2,160 bls. sulphite.
Castle & Overton, Inc., Blydendyk, Holland, 360 bls. wood pulp.
Castle & Overton, Inc., Seattle Spirit, Hamburg, 58 bls. rags.
E. J. Keller Co., Inc., West Harcuvar, Bremen, 122 bls. rags.

NORFOLK IMPORTS

WEEK ENDING AUGUST 13, 1927

National City Bank, Saugus, Genoa, 138 bls. bagging.

News of the Indiana Trade

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., August 15, 1927.—The story of the development of the paper industry in the world was outlined by Frank E. Floyd, head of the Crescent Paper Company of Indianapolis, recently to members of the Universal Club. Mr. Floyd explained the various methods used to manufacture modern papers and told of the progress made by modern science to perfect new paper-making methods.

H. J. Lacy, president of the United States Corrugated Box Company, Indianapolis, sustained a loss of more than $28,000 recently when two saddle horse barns were destroyed at his country home. Sixteen valuable show horses, including Chestnut Twig, Indiana champion for four years, were rescued, but several horses in their fright, became entangled in fences and were seriously injured.

Fred Korte, secretary-treasurer of the Becker Brothers Paper Company at Fort Wayne, Ind., is mourning the loss of his father, Frederick Korte, 73 years old, who died at his home recently. Mr. Korte, Sr., had lived in Fort Wayne practically all his life and had been connected with a lumber company for years.

On August 35, the Indianapolis printers will be the guests of the Indianapolis Paper Merchants at the second annual Printers and Paper Merchants Gold Tournament to be held at the Avalon Country Club. This will be a handicap tournament and play will be for the beautiful silver cup now held by Phil Plunkett, a printer, and for various other prizes. There will be no entrance or green fees.

W. H. Wilsen, manager of the Superior Paper Company of Fairmount, Ind., is at his home in Marion, Ind., suffering from injuries sustained in an unusual accident. Because of a weak battery in his automobile, he found it necessary to use the crank. He accidentally threw the machine in gear in turning on the ignition. When he used the hand crank the auto gave a lurch forward pinning him between the machine and the garage, holding him a hopeless prisoner until the gas in the carburetor had been consumed. He was unable to make anyone hear his cries for help. While his lower limbs are badly mashed and bruised, and it will be some time before he is able to resume business, it is not thought the injuries will be of a permanent nature.

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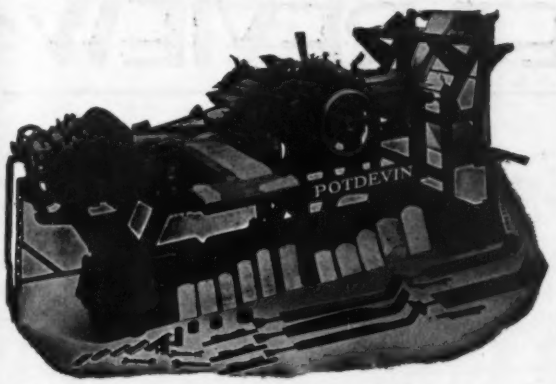

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40 Other Models
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New York Sept. 5-17, 1927

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FIDALGO PROCESS — DRY PULP—SAME TEST AS WET

With FIDALGO METHOD the temperature at discharge or dry end of dryer is 110° Fahrenheit. No contact with hot rolls, simply a counter-current of warm dry air.

33 1/3 SAVING AT BEATER

Bales of approximately 300 lbs. are dumped into beater. High porosity of pulp due to no contact with hot rolls insures immediate absorption into beater stock. Also shredded (while wet) form augments quick, breaking up without injury to fiber. Mills now using pulp dried by FIDALGO PROCESS will confirm this.

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Compressed in air dried form to forty cubic feet or less to short ton, wrapped and strapped while in press, requires less labor than handling of wet pulp. Bales withstand roughest handling in export trade and conform to shipping requirements.

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New York Market Review

Office of THE PAPER TRADE JOURNAL,
Wednesday, August 17, 1927.

Most of the business transacted in the local paper market during the past week was along routine lines, although conditions are considered to be fairly satisfactory for the time of the year. A material broadening of the situation is confidently anticipated after Labor Day and sales forces of the leading paper houses are preparing to take advantage of the more active market which should then prevail. Quotations in practically all sections of the paper industry continue to hold up well, with little talk of concessions.

Demand for news print is being maintained in a normal manner. Contract withdrawals are still proceeding at a steady pace. While the spot market rules rather quiet, more active conditions may be expected after the end of the holiday season. Prices of news print are generally holding up to previously quoted levels.

Some improvement has been noticed in the paper board market. Production is now approaching capacity, and the demand is also beginning to expand with the approach of autumn. The fine paper market is in a sound position and prices of most of the different grades remain unaltered. Tissues continue in good request. Summer specialties are still active in the coarse paper market and the request for wrapping paper is persistent.

Mechanical Pulp

Production of ground wood is keeping slightly ahead of the prevailing consumption and stocks in hand are in sufficient volume to take care of current requirements. Shipments against contract are moving into consumption at an excellent rate, but trading in the spot market has been rather quiet of late. No further price changes have been recorded recently.

Chemical Pulp

Steadiness continues to prevail in the chemical pulp market. Shipments against contract are moving into consumption in a fairly satisfactory manner. Prices are now more stable than for some time past and there have not been many reports of shading. Judging by the number of inquiries being received for future business, a more lively market is apparently due in the near future.

Old Rope and Bagging

Old rope is in fairly satisfactory request at present and prices of both the domestic and imported varieties are mostly keeping up to formerly quoted levels. The various grades of bagging are in moderate demand. Some observers of the market are looking forward to a general expansion of trading in the near future.

Rags

The paper mills are reported to be evincing interest in both imported and domestic rags and a more lively market may result shortly, although the prevailing demand is only "spotty." In some quarters the opinion is expressed that stocks in the hands of the paper manufacturers are low. No radical price changes were recorded during the week.

Waste Paper

With an improved inquiry developing from the board mills, the paper stock market is beginning to exhibit a stronger undertone. Collections are proceeding in a normal manner for the time of the year. Offerings of several of the grades of paper stock are rather scarce and prices are gradually becoming firmer.

Twine

No radical changes have transpired in the twine market. Although the amount of business being transacted at present is rather small, it is felt that this condition is only seasonal and that a revival of activities is bound to take place next month. Prices remain unchanged from recently reported levels.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 17, 1927.—The Government Printing Office has received the following bids for 40,000 pounds of 38x48—269 white halftone book paper: Whitaker Paper Company, 6.5 cents per pound; R. P. Andrews Paper Company, 6.45 cents; American Writing Paper Company, 7.5 cents; Bryant Paper Company, 6.9 cents; Barton, Duer & Koch Paper Company, 6.25 cents; Walker-Goulard-Plehn Company, 6.76 cents, 6.44 cents and 6.4 cents; Reese & Reese, 9 cents; Dobler & Mudge, 6.14 cents; P. H. Gladfelter Company, 7.5 cents; and Stanford Paper Company, 7.5 cents and 8.75 cents.

The following bids have been received for 10,000 pounds of white sulphite writing paper in 17 inch rolls: R. P. Andrews Paper Company, at 7.5 cents per pound; American Writing Paper Company, 7.21 cents; Dobler & Mudge, 6.5 cents; and Old Dominion Paper Company, 7.49 cents.

For 7,100 pounds 26x34—95½ white bond paper: Collins Manufacturing Company, 33.5 cents per pound; R. P. Andrews Paper Company, 32.5 cents; Barton, Duer & Koch Paper Company, 38 cents; and Dobler & Mudge, 30 cents.

The Printing Office has also received the following bids for 3,500 pounds of 22x28 inch gray photo mount board: Charles G. Stott & Co., $72.89 per M sheets; Whitaker Paper Company, $76.90; Dobler & Mudge, $69.00 and $80.00; Reese & Reese, $75.00 and $83.00; R. P. Andrews Paper Company, $69.00; Stanford Paper Company, $70,000 and $72.50; Mathers-Lamm Paper Company, $72.50 and $84.00.

For 150,000 pounds of manila tag board in 26¼ inch rolls: Barton, Duer & Koch Paper Company, 9.35 cents and 8.35 cents per pound; Reese & Reese, 9.305 and 9.855 cents; Dobler & Mudge, 9 cents; Whitaker Paper Company, 9.357 cents; R. P. Andrews Paper Company, 7.82 cents.

For 40,000 pounds of No. 2, 25x30—No. 20 binders board: Barton, Duer & Koch Paper Company, at $60.75 per ton; Mathers-Lamm Paper Company, $62.00; Whitaker Paper Company, $63.75; Walker, Goulard Plehn Company, $68.00; Dobler & Mudge, $61.50; and Fred M. Stewart Company, $70.00 less 1 per cent.

For 40,000 pounds high finish sulphite manila tag board in 18 inch rolls: R. P. Andrews Paper Company, at 6.59 cents per pound, and 8.45 cents; Mathers-Lamm Paper Company, 7.65 cents; Old Dominion Paper Company, 7.82 cents; Walker, Goulard Plehn Company, 7.79 cents less 2 per cent; Port Hiron Sulphite & Paper Company, 6.71 cents.

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101 BEEKMAN STREET NEW YORK

Ruths Accumulator Company, Inc.

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Miscellaneous Markets

Office of THE PAPER TRADE JOURNAL,
Wednesday, August 17, 1927.

Greater activity prevailed in the local chemical market during the past week than is usual at this season of the year. Contract withdrawals have been moving along at a good pace and accumulations are being readily absorbed in the spot market. In nearly all of the sections of the industry quotations remained steady and there was an absence of reports of concessions.

BLANC FIXE.—Demand for blanc fixe was satisfactory during the week. The movement against contract was excellent. Quotations on both the pulp and the powder were maintained at previously reported levels. The pulp is selling at $60 per ton, in bulk. The powder is still quoted at from 4 cents to 4½ cents a pound, in barrels, at works.

BLEACHING POWDER.—Conditions in the bleaching powder market are practically unchanged. The volume of contract shipments moving into consumption during the week was quite satisfactory. Prices remain unaltered. Bleaching powder is still quoted at from $2 to $2.40 per 100 pounds, in large drums, at works, according to quantity.

CASEIN.—Trading in the casein market was fairly active. Offerings were rather limited and prices of both the imported and domestic product have stiffened somewhat. Domestic casein is now offered at from 17 cents to 18¼ cents per pound. Imported casein has advanced to from 18 cents to 18¼ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Shipments of caustic soda continue to move in a satisfactory manner. The prevailing consumption is well up to average. Prices rule steady to firm. Solid caustic soda is selling at from $3 to $3.10 per 100 pounds, in large drums, at works. Spot car lots are quoted at from $3.20 to $3.25 per 100 pounds. The flake and ground are offered at around $3.50 per 100 pounds.

CHINA CLAY.—Both imported and domestic paper makers' clay were in moderate request during the past week. Contract shipments are moving in a normal manner. Prices are unchanged from the previously quoted basis. English china clay is quoted at from $15 to $25 a ton, ship side. Domestic paper makers' clay is still selling at from $8 to $9 a ton, in bulk, at mine, and pulverized at from $10 to $12 per ton.

CHLORINE.—Consumption of chlorine has been heavy of late and contract withdrawals have been moving at an excellent rate. Prices are being maintained at the level which has prevailed for some considerable time. Chlorine is quoted at 4 cents a pound, in tanks, or multi-unit cars, at works, on contract orders. The spot quotation ranges from 4¼ cents to 4½ cents a pound.

ROSIN.—Business in the rosin market has fallen off slightly. Prices have again been fluctuating and at the time of writing are lower than in the preceding week. At the naval stores, the grades of gum rosin used in the paper mills are now offered at $10.90 per 280 pounds, in barrels, ship side. Wood rosin is still selling at $9.50 per 280 pounds, southern shipping points.

SALT CAKE.—The undertone of the salt cake market is exceptionally strong. Shipments against contract continue to move into consumption at an excellent pace. Supplies are rather limited and the spot market is very firm. Salt cake is still quoted at from $18 to $19 a ton, in bulk, at works. Chrome salt cake is offered at from $14 to $15 a ton, in bulk, at works.

SODA ASH.—Steadiness prevails in the soda ash market. Large shipments of this product are going forward on contract and consumption is heavy for the time of the year. Prices continue to hold up very well and reports of shading are infrequent. Contract quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.20; in bags, $1.32½; and in barrels, $1.57½.

STARCH.—The starch market is in a sound position. Trading has been well maintained and the amount of business being transacted compares favorably with the record of a year ago. Prices remain unchanged, although the prices of raw materials are higher. Special paper makers' starch is quoted at $3.07 per 100 pounds, in bags, and at $3.24 per 100 pounds, in barrels.

SULPHATE OF ALUMINA.—Supplies of sulphate of alumina continue to move into consumption in good volume. Inquiries for future business are being received by the manufacturers in satisfactory numbers. Prices continue practically unchanged. Commercial grades of sulphate of alumina are selling at from $1.40 to $1.45 per 100 pounds. The iron free is quoted at from $2 to $2.05 per 100 pounds, in bags, at works.

SULPHUR.—The movement of sulphur into consuming channels during the past week was fairly satisfactory. Trading in the spot market was rather quiet, but prices remain unaltered. Sulphur is still quoted at from $18 to $19 a ton, in bulk, at mine, according to quantity. The spot quotation remains unaltered at $20 per ton.

TALC.—Manufacturers of talc are enjoying an excellent request for the product and the former schedule of prices is being maintained with little difficulty. Quotations on domestic talc range from $16 to $18 a ton, at eastern mines. French talc is still offered at from $18 to $22 a ton, ship side.

News of the Chicago Paper Industry

CHICAGO, Ill., August 12, 1927.—The Chicago Paper Association will resume their regular meetings on August 23 after a summer recess. The meetings will be held at the Bismark Hotel. A very commendable program is to be adopted which will be devoted to the study and improvement of trade and business relations. There have been a number of annoyances in the past for which it is hoped that there may be a remedy and certainly the clinic idea will solve them after a careful diagnosis.

A logical date has been selected by the Middle States Wrapping Paper Association for their convention, which will be held at the Congress Hotel, October 3. This is the same date chosen by the National Association and will make it possible for delegates interested to attend both meetings.

Henu Borchardt, sales manager of the Pilcher Hamilton Company, will return this week from Portland, Ore. He has spent his time in visiting the plant of the North Western Paper Company, which is represented in Chicago by the Pilcher Hamilton Company. As a variation to his business trip he will return by way of Banff and Lake Louise.

R. C. Johnson, Chairman of the Golf Committee of the Chicago Division of the S.A.P.I., reports a goodly number of reservations for the second tourney to be held at Wilmette Country Club, August 18. A report from the 19th hole will be given next week.

Harry S. Eckstein, secretary of the Association Paper Company, 1529 North Halsted street, left Friday on an extended trip through Wisconsin. His itinerary will include Wisconsin Rapids, Fort Edward, Nekoosa, Appleton and Milwaukee, where he will spend some time visiting the dealers and manufacturers of the above named towns.

New England Paper Trade News

William J. Alford, Jr., treasurer of the Continental Paper Company, Bogota, New Jersey, who is making a tour of New England and Eastern Canada, Gordon Blanchard, sales manager of the Crocker-McElwain Company, Holyoke, Mass., Don Brown, of the Strathmore Paper Company, Mittineague, Mass., and W. H. Lucas of the Frank L. Scott Company, New York, were in town last week.

Colonel Edgar Smalley, managing director of Edwin Butterworth, Ltd., of Manchester and Liverpool, England, and Ghent, Belgium, who has been on a business trip to this country for a few weeks, returned to England Saturday, August 6, on the *Adriatic*.

Harrie E. Waite, manager of sales and advertising of John Carter & Company, Inc., is passing his vacation in Northern Vermont. Max Frank, buyer of papers for the same company, returned this week from a vacation at Eliot, Maine.

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Self Adjusting — Easy to Operate

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AUTOMATIC TUBE MACHINES

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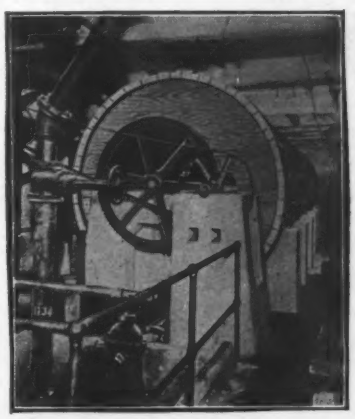

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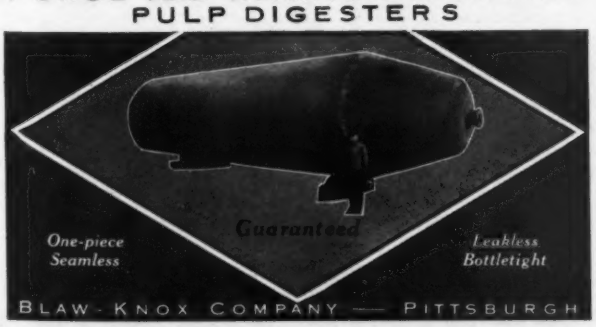

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Quoted by Hepburn & Co., 74 Broadway, N. Y. City, to whom all inquiry for quotations on these or any other Securities is referred.

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Advance Bag & Paper, 7s 1943	105	107
A. P. W. Pulp & Power, 7s 1945	101	102
American Writing Paper, 6s 1947	79	82
Bastrap Pulp & Paper, 6½s 1940	100	103
British Columbia Pulp & Paper, 6s 1950	85	90*
Beaver Products Corp., 7½s 1942	106	109
Berkshire Hills Paper, 8s 1941	60	80
Brown Paper Co., 1st 5½s 1946	94	98
Bryant Paper Co., 6s 1942	100½	102
Cape Breton Pulp & Paper, 6s 1932	101	103
Central Paper Serial 6, 6½s 1942	89	...
Champion Coated Paper, 6s 1926 to 1932	99	...
Champion Fibre, 8s 1930	100	...
Champion Paper Corp'n, 1st 6s 1945	95	97
Continental Paper Products, 6½s 1943	88	91½
Cornell Wood Prod., 7½s 1937	100	104*
Crown Willamette Paper, 6s 1951	97	101
Donnaconna Paper, 6s 1940	101	102½
Dells Paper & Pulp Serial, 6s 1926-38	*95	...
Eastern Mfg. Co., 7s 1938	89	91
Eddy Paper, 7½s 1931	102	104
Escanaba Paper Serial, 6s 1926-39	94	96
Fiber Fibre Serial, 7s 1926-39	95	...
Fort Orange Paper, 7s 1942	95	100*
Fox River Paper, 7s 1931	99	...
Gair Co. (The Robt.), 7s 1937	104	106
Gilbert Paper Co., 6½s 1926-29	89	...
Hammermill Paper, 6s 1939	100	103*
Hoberg Paper & Fibre, 7s 1937	94½	96
Itaska Paper & Prairie River Power, J+5½s 1926-38	94	96*
Itaska Paper 1st, 6s 1933-38	96	98*
Kalamazoo Veg. Parchment, 6s 1938	98	...
Marinette & Menominee, 7½s 1936	103½	105
Menasha Printing & Carton, 6½s 1939	99½	...
Mengel Company, 7s 1926 to 1934	103	...
Monroe Paper Products, 7½s 1932	96	...
Munising Paper, 6s 1927-36	96	100
Nekoosa Edwards, 1st Ref. 6s 1928 to 1942	96	99*
Orono Pulp & Paper, 6s 1943	98	...
Orono Pulp & Paper, 5s 1941	94	...
Oswego Falls Corp., 6s 1941	98	100*
Oxford Paper, 6s 1947	104	...
Paepcke Paper Mills, 7s 1930	99	None
Parsons Pulp & Lumber, 7s 1928	97	...
Parker Young Co., 6½s 1944	96½	98½
Paterson Parchment Paper, 6s 1938	100½	102
Penobscot Chemical Fibre, 6s 1942	98	...
Poland Paper, 7s 1930	98	...
Port Alfred Pulp, 6½s 1943	*96	...
Queens City Paper, 7s 1932	95	100*
Richardson Co., 6s 1938	100	...
Spanish River Pulp & Paper, 8s 1941	106	110
Stevens & Thompson Paper, 6s 1942	93	95
St. Anne Paper, 6½s 1946	95½	98*
St. Croix Paper, 5s 1926-37	95	98*
St. Regis Paper Serial, 6½s 1926-35	98½	...
Tait Paper & Color Industries, 6s 1934	90	95
Taggart Bros. Co., 6s 1944	94	97
Ticonderoga Pulp & Paper, 5s 1930	95	98
Ticonderoga Pulp & Paper, 6s 1940	99	101
Warren (The S. D.) Company, 6s 1945	99	101
Wotab Paper, 6½s 1943	102	...
Westfield River Paper, 7s 1926-43	Wanted	...
Whitaker Paper, 7s 1942	106	108
Witmer-Parsons Pulp & Lbr. (Units)	63	70

STOCKS	BID	ASKED
Advance Bag & Paper, 8% Pfd.	97	100*
Am. Tissue Mills, 7% Pfd.	95	100
British Columbia P. & P., Pfd.	65	70
Brompton Pulp & Paper, 8% Pfd.	93	98*
Brown Corpn., 7% Pfd.	97	100*
Champion Fibre, 7% Pfd.	105	...
Diem & Wing, 7% Cum. Pfd.	87	...
Donnaconna Paper, Com.	58	...
Donnaconna Paper, Pfd.	95	100
Eastern Mfg. Co., 1st Pfd.	34	37
Great Northern Paper (new)	62	65
Hammermill Paper, 7% Pfd.	105	110
Hinde & Dauch, Com.	135	...
Hinde & Dauch, Pfd.	100	...
Holyoke Card & Paper	150	None
Marathon Paper Mills, Com.	125	...
Midwest Box Co., Pfd. 8%	80	85
Midwest Box Co., Pfd. 6%	55	65
Louis De Jonge Co., 7% Pfd.	93	96
Oxford Papers, Com.	170	———
Oxford Paper Co., Pfd.	175	———
Penobscot Chemical Fibre, Com.	65	75*
Richardson Co., 7% Pfd.	104	...
Rubberoid Company (Ex. Rights)	66	71
Seaman Container, Class B (par $1)	1	None Off.
Seaman Paper Co.	Wanted	None Off.
St. Croix Paper	150	170
St. Regis Paper Co., 7% Cum. Pfd.	100½	102½
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper, Com.	58	63
West Virginia Pulp and Paper, Pfd.	100	103
Whittaker Paper, 7% Cum. Pfd.	97	103

* Nominal.

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.25	@ —
Rolls, transient	3.25	@ 3.50
Sheets	3.65	@ 3.85
Side Runs	3.00	@ 3.75
Book, Cased—		
S. & S. C.	6.35	@ 7.75
M. F.	6.25	@ 7.75
Coated and Enamel	8.00	@15.00
Lithograph	8.00	@15.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.10	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .85
Kraft	.90	@ 1.00
Manila	.75	@ .85
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	5.25	@ 5.50
Southern	4.75	@ 5.25
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

Boards—per ton—		
News	47.50	@50.00
Straw	53.50	@57.50
Chip	45.00	@50.00
Binders' Boards	70.00	@75.00
Sgl. Mla. Ll. Chip	55.00	@57.50
Wood Pulp	80.00	@85.00
Container	65.00	@70.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	28.00	@30.00
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	27.00	@30.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.50	@ 4.50
Easy Bleaching	2.85	@ 3.10
No. 1 strong unbleached	2.50	@ 2.75
Mitscherlich unbleached	2.65	@ 3.40
No. 2 strong unbleached	2.40	@ 2.55
No. 1 Kraft	2.70	@ 2.90
No. 2 Kraft	2.50	@ 2.60
Sulphate—		
Bleached	3.75	@ 4.00

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.85	@ 3.05
News Sulphite	2.50	@ 2.70
Mitscherlich	3.25	@ 3.70
Kraft (Domestic)	2.70	@ 3.40
Soda Bleached	3.50	@ 3.75
Sulphate Screenings—		
Coarse	.75	@ .85
Refined	1.50	@ 1.85

Domestic Rags

New Rags

Prices to Mill f. o. b. N. Y.

Shirt Cuttings—		
New White, No. 1	11.50	@12.00
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.25	@10.75
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	6.75	@ 7.25
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.50	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.00	@ 5.50
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.75	@ 6.50
Miscellaneous	4.75	@ 5.25
White, No. 2—		
Repacked	3.25	@ 3.75
Miscellaneous	2.75	@ 3.00
St. Soiled, White	2.50	@ 2.75
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.60	@ 1.70
No. 1	1.60	@ 1.70
No. 2	1.35	@ 1.45
No. 3	1.25	@ 1.35
No. 4	1.25	@ 1.35
No. 5A	.95	@ 1.05

Foreign Rags

New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.75	@ 8.50
Unbleached Cottons	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50
New Mixed Cuttings	3.00	@ 3.50
New Dark Cuttings	2.75	@ 3.25
No. 1 White Linens	7.00	@ 7.75
No. 2 White Linens	5.25	@ 6.00
No. 3 White Linens	4.00	@ 4.50
No. 4 White Linens	3.00	@ 3.50
Old Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	1.90	@ 2.10
Dutch Blue Cottons	2.25	@ 2.50
German Blue Linens	2.50	@ 2.75
German Blue Cottons	2.00	@ 2.25
Checks and Blues	1.75	@ 2.00
Lindsay Garments	1.70	@ 1.75
Dark Cottons	1.55	@ 1.60
Shoppery	1.50	@ 1.55
French Blues	2.25	@ 2.50

Old Rope and Bagging

Prices to Mill f. o. b. N. Y.

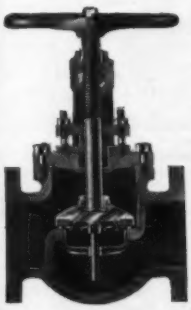
Gunny No. 1—		
Foreign	1.80	@ 1.90
Domestic	1.80	@ 1.90
Wool Tares, light	1.60	@ 1.70
Wool Tares, heavy	1.60	@ 1.70
Bright Bagging	1.60	@ 1.70
Small Mixed Rope	1.50	@ 1.65
Manila Rope—		
Foreign	3.25	@ 3.75
Domestic	4.25	@ 4.75
New Burlap Cut	3.00	@ 3.25
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.25	@ 3.35
Hard, White, No. 2	2.75	@ 2.90
Soft, White, No. 1	2.75	@ 2.90
Flat Stock—		
Stitchless	1.25	@ 1.35
Overissue Mag.	1.25	@ 1.35
Solid Flat Book	1.15	@ 1.25
Crumpled No. 1	.80	@ .90
Solid Book Ledger	1.90	@ 2.10
Ledger Stock	1.40	@ 1.50
New B. B. Chips	.45	@ .55
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.65	@ .75
Container Board	.50	@ .55
Bogus Wrapper	.70	@ .80
Old Kraft Machine		
Compressed bales	1.90	@ 2.00
News—		
No. 1 White News	160	@ 1.65
Strictly Overissue	.60	@ .70
Strictly Folded	.47½	@ .52½
No. 1 Mixed Paper	.37½	@ .42
Common Paper	.25	@ .30

They bear the brunt of severe service



Sectional view, Fig. 162, flanged, Jenkins Extra Heavy Iron Body Globe Valve

Jenkins Extra Heavy Valves are ready to bear the brunt of severe service under high pressures. Put them to the test in your mill.

The added weight is where it counts, the design being typical of Jenkins. The iron body valve illustrated is suitable for steam working pressures up to 400 lbs. Before leaving the factory each passes a test which allows for a wide safety margin.

Jenkins Extra Heavy Valves are furnished in bronze and iron in globe, angle, check and Y patterns. Obtainable through supply houses everywhere.

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646 Washington Boulevard ..Chicago, Ill.
JENKINS BROS., Limited
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Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

For Greater Economy
Without Sacrificing Quality

Use
ALPHA
FIBRE

Our new product—
which takes the place of
rags in paper-making

Inquiries from the trade are welcomed

BROWN COMPANY
founded 1852
PORTLAND, MAINE

Sulphur

A FIRST REQUISITE

IN

Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO.
41 E. 42nd Street New York City
Mine Gulf, Matagorda County, Texas

WE WILL BUY

Champion Coated Paper Co. 6s, 1931	@100
Dierks Lumber & Coal Co. 6s	@100
Escanaba Paper Co. 6s	@ 94
Eddy Paper Co. 7½s, 1931	@102
Minnesota Tribune 6½s, 1942	@103½
Oregon Lumber Co. 6s, 1935	@ 98
Stevens & Thompson Paper Co. 6s, 1942	@ 94
Tait Paper & Color Industries 6s	@ 90
West Virginia Pulp & Paper Co. Pfd.	@ 99
Filer Fibre Co. 7s, 1935	@ 94

WE WILL SELL

Chicago Mill & Lumber Co. 5½s, 1935	@100
Donnacona Paper Co. 6s, 1940	@102
Filer Fibre Company 7s, 1935	@ 98
Great Northern Paper Co.	@ 64
Mead Pulp & Paper Co. 5s	@ 94
Minnesota & Ontario Paper Co. 6s, 1935	@103½
Quebec Pulp & Paper Co. Pfd.	@ 35
St. Regis Paper Co. 6s, 1931	@100½
Ticonderoga Pulp & Paper Co. 6s, 1940	@102½

H. D. KNOX & CO.

44 Broad St., N. Y. 27 State St., Boston

Inquiries invited on all Paper Pulp Lumber Securities

Twines

F. o. b. Mill

Cotton—			
No. 1	.28	@	.29
No. 2	.26	@	.27
No. 3	.24	@	.25
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.21	@	.23
No. 2	.20	@	.22
Tube Rope—			
4-ply and larger	.18	@	.19
Fine Tube Yarn—			
5-ply and larger	.23	@	.27
4-ply	.24	@	.28
3-ply	.26	@	.30
Unfinished India—			
Basis	.16	@	.17
Paper Makers Twine			
Balls	.13	@	.15
Box Twine, 2-3 ply	.17	@	.19
Jute Rope	.21	@	.23
Ameri. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.18	@	.20
No. 2 Basis	.16	@	.18
Sisal Lath Yarn—			
No. 1	.16	@	.18
No. 2	.14	@	.16
Manila Rope	.24	@	.26

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¼	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06¾
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.05¾	@	.06¾
Southern Kraft	.04½	@	.05
No. 2 Kraft	.05	@	.05¼
Wood Tag Boards	.04¼	@	.06¾
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 sheet	.07¼	@	.07½
Boards, per ton— (Delivered Central Territory—			
Plain Chip	45.00	@	47.50
Solid News	47.50	@	—
Manila Line Chip	55.00	@	57.50
Container Lined— (Delivered Central Territory)—			
85 Test	65.00	@	70.00
100 Test	70.00	@	75.00

Old Papers

F. o. b. Chicago

Shavings—			
No. 1 Hard White	2.70	@	2.80
White Env. Cuttings	3.60	@	3.70
No. 1 Soft Shavings	2.30	@	2.40
No. 1 Mixed	1.35	@	1.45
No. 2 Mixed	1.05	@	1.10
Ledger & Writings	1.45	@	1.60
Solid Books	1.20	@	1.30
Blanks	1.30	@	1.40
Krafts	1.80	@	1.90
New Kraft Cuts	2.25	@	2.35
Manila Envelope Cuttings	2.00	@	2.10
Ex. No. 1 Manila	1.55	@	1.65
Print Manila	.80	@	.90
Folded News (overissue)	.35	@	.47
Old Newspapers—			
No. 1	.55	@	.60
No. 2	.50	@	.55
Mixed Papers—			
No. 1	.35	@	.40
Roofing Stocks— F. o. b. Chicago, net cash			
No. 1	30.00	@	—
No. 2	28.00	@	—

BOSTON

Paper

F. o. b. Mill

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08¼
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	09¾	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05¾	@	.06½
No. 2 Kraft	.04¾	@	.05¾
Common Bogus	.02	@	.02½
Delivered New England points			
Straw Board, rolls	.009		57.50
Straw Board in Sheets, basis 35s to 70s			53.50
Filled News Board			47.50
Chip Board			45.00
Single Manila Pulp lined board	55.00	@	60.00
Single White, patent coated board bender	75.00	@	82.50
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mills)			
Tarred Felts— Regular, carload lots	65.00	@	—

Old Papers

F. o. b. Boston

Shavings—			
No. 1 Hard White	2.75	@	3.10
White Blank News	1.50	@	1.60
Manila Env. Cuttings	2.00	@	2.25
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.85	@	3.00
No. 1 Soft White	2.75	@	3.00
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	1.90	@	1.95
No. 1 Books, Heavy	1.17½	@	1.30
No. 1 Books, Light	—	@	1.15
Old Kraft	1.80	@	1.95
No. 1 Old Manila	1.40	@	1.60
No. 1 Mixed Paper	.45	@	.50
Print Manila	.70	@	.80
Overissue News	.55	@	.60
Old Newspapers	.45	@	.50
Box Board, Chip	.45	@	.60

Bagging

Price f. o. b. Boston

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.50	@	1.60
Manila Rope—			
Foreign	3.50	@	3.75
Domestic	4.00	@	4.37½
Mixed Rope	1.05	@	1.15
Scrap burlaps	1.35	@	—
Wool Tares, heavy	1.40	@	1.60
Mixed Strings	.90	@	1.05
New Burlap Cutting	2.15	@	2.25

Domestic Rags (New)

Price f. o. b. Boston

Shirt Cuttings—			
New White No. 1	.11¼	@	.11½
Silesias, No. 1	.07	@	.07½
New Unbleached	.10	@	.10½
Fancy	.05¾	@	.06
Washable	.04½	@	—
Cottons—According to Grades—Blue—			
Blue Overalls	—	@	.07
New Black, soft	.04	@	.04¼
Khaki Cuttings	.05	@	.05½
Corduroy	.03	@	.03½
New Canvas	.09	@	.10

Domestic Rags (Old)

Price f. o. b. Boston

White No. 1—			
Repacked	5.00	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Thirds and Blues—			
Repacked	2.12½	@	2.37½
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.45	@	1.55
No. 2	1.33	@	1.43
No. 3	.96	@	—
No. 4	1.10	@	—

PHILADELPHIA

Paper

F. o. b. Mill

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06¾	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Label	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila	.09½	@	—
Manila Sul., No. 1	.04½	@	.06
Manila, No. 2	.04	@	.04½
No. 2 Kraft	.05	@	.05¼
No. 1 Kraft	.06	@	.06¼
Common Bogus	.02¾	@	—
Straw Board	60.00	@	65.00
News Board	45.00	@	50.00
Chip Board	40.00	@	42.00
Wood Pulp Board	4.50	@	5.00
(Carload Lots)			
Binder Boards—			
No. 1, per ton	85.00	@	90.00
No. 2, per ton	70.00	@	75.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	66.00	@	58.00
Slaters	70.00	@	72.00
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.55	@	1.70
Best Tarred, 3-ply	2.10	@	2.15
No. 1 Mixed Paper	.65	@	.70

Domestic Rags (New)

Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.11½	@	.12
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Silesia, soft)	.05	@	.05½
New Unbleached	.10½	@	.11
Washable	.04	@	.04½
Fancy	.05½	@	.06
Cottons—according to grades—			
Blue Overall	.07½	@	.08
New Blue	.03½	@	.04
New Black Soft	.05½	@	.06
New Light Seconds	.03	@	.03¼
Khaki Cuttings	.04½	@	.05
Corduroy	.03	@	.03¼
New Canvas	.08	@	.09
New Black Mixed	.05	@	.05½

Bagging

F. o. b. Phila

Gunny, No. 1—			
Foreign	2.00	@	2.25
Domestic	1.75	@	2.00
Manila Rope	3.50	@	4.00
Sisal Rope	1.25	@	2.00
Mixed Rope	1.10	@	1.25
Scrap Burlaps	1.50	@	1.65
Wool Tares, heavy	3.00	@	3.50
Mixed Strings	1.25	@	1.35
No. 1, New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.25	@	2.50

Old Papers

F. o. b. Phila.

Shavings—			
No. 1 Hard White	3:50	@	3.60
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	2.80	@	2.90
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.90	@	2.00
Writing Paper	1.65	@	1.75
No. 1 Books, heavy	1.15	@	1.20
No. 2 Books, light	.80	@	.85
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	1.00	@	1.10
Container Manila	.75	@	.80
Old Kraft	2.00	@	2.20
Common Paper	.40	@	.50
No. 1 Mixed Paper	.50	@	.60
Straw Board, Chip	.60	@	.65
Binders Board, Chip	.60	@	.65
Overissue News	.75	@	.80
Old Newspaper	.50	@	.60

Domestic Rags (Old)

White, No. 1—			
Repacked	4.50	@	5.25
Miscellaneous	3.50	@	4.00
White, No. 2—			
Repacked	.02½	@	.03
Miscellaneous	.02	@	.02¼
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	1.50	@	1.75
Black Stockings	3.25	@	3.50
Roofing Stock—			
No. 1	1.50	@	1.60
No. 2	1.37½	@	—
No. 3	1.25	@	1.35
No. 4	1.10	@	1.20
No. 5A	.90	@	1.00
B	.80	@	.90
C	.80	@	.90

TORONTO

Paper

F. o. b. Mill

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¾	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (Carloads)	3.25	@	—
Sheet (carload)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.75	@	—
No. 2 M. F. (carloads)	7.50	@	—
No. 3 M. F. (carloads)	7.25	@	—
No. 1 S. C. (carloads)	8.25	@	—
No. 2 S. C. (carloads)	8.00	@	—
No. 3 S. C. (carloads)	7.75	@	—
No. 1 Coated and litho	14.50	@	—
No. 2 Coated and litho	13.50	@	—
No. 3 Coated and litho	12.75	@	—
Coated tinted	.15	@	—
Wrapping—			
Rag Brown	4.85	@	—
White Rag	5.25	@	—
"B" Manila	5.65	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft M. F.	7.20	@	—
M. G.	7.35	@	—

Pulp

(F. o. b. Mill)

Ground wood	28.00	@	30.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	55.00	@	58.00
Sulphite, bleached	78.00	@	80.00
Sulphate	65.00	@	—

Old Waste Paper

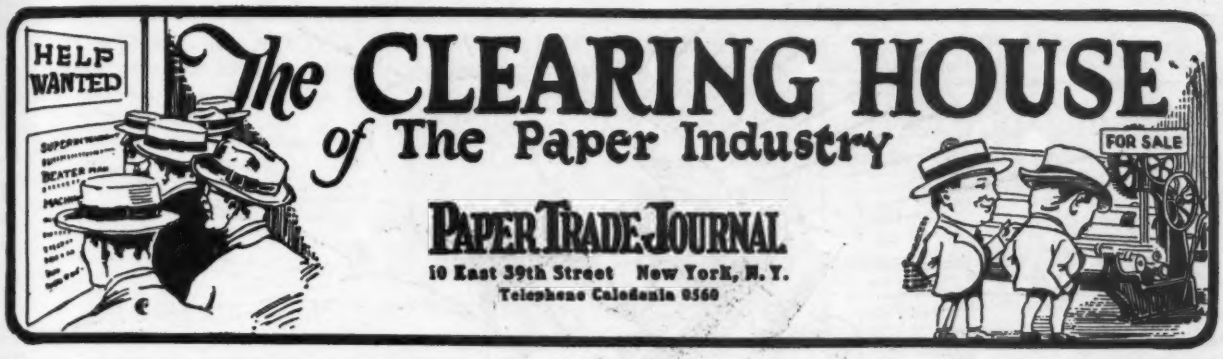
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	3.00	@	—
White Blk, News	1.40	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.25	@	—
Light and Crumpled Book Stock	1.10	@	—
Ledgers and Writings	1.40	@	—
Solid Ledgers	1.40	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.47½	@	.52½
No. 1 Mixed Paper	.37½	@	.42

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.12	@	.12½
Fancy Shirt Cuttings	06	@	.06½



"SITUATION WANTED" ADVERTISEMENTS—4c a word, double rates for heavy face type. Minimum charge $1.00. If repeated ½ rate will be charged for each consecutive repetition.

"HELP WANTED" ADVERTISEMENTS—4c a word, double rates for heavy face type. Minimum charge $1.00.

CLASSIFIED ADVERTISEMENTS—4c a word, double rate for heavy face type. Minimum charge $1.00.

All classified, "Help Wanted" and "Situation Wanted" advertisements are payable in advance.

HELP WANTED

WANTED—First-class sulphite cook with thorough experience in cooking high grade hemlock pulp. Give full information and reference in your reply. Address, Box 27-464, care Paper Trade Journal. A-18

WANTED—A back tender on test and combination boards. Mill in Middle West. Address, Box 27-465, care Paper Trade Journal. A-18

WANTED—By old established house, experienced pulp salesman acquainted with buyers and users of foreign pulps. Address, Box 27-466, care Paper Trade Journal. A-18

WANTED—Tour boss familiar with all grades of box board, including patent coated and container, for two machine mill in Connecticut operating on eight hour shifts. Address, Box 27-467, care Paper Trade Journal. A-18

WANTED—First-class cylinder tissue machine tenders, top felt. Must be sober men; reference required. Address, Box 27-461, care Paper Trade Journal. A-25

AN EXCEPTIONAL OPPORTUNITY for the right man. Must have knowledge of paper and paper boards, to take charge of mill department and correspondence. State age, past experience and other details. Address, Box 27-436, care Paper Trade Journal. A-25

PAPER TRADE readers find our Service effective in making connections. Individual. Confidential. Personally planned by Jacob Penn, known by all mill owners. Not agency. Jacob Penn, Incorporated, 9 Park Place, New York. tf.

IF YOU are open to overtures for new connection, and qualified for a salary between $2,500 and $25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service, of recognized standing and reputation, through which preliminaries are negotiated confidentially for positions of the calibre indicated. The procedure is individualized to each client's personal requirements; your identity covered and present position protected. Established sixteen years. Send only name and address for details. R. W. Bixby, Inc., 117 Downtown Building, Buffalo, New York. tf.

NIGHT SUPERINTENDENT for large wax paper plant, Middle West. Must be especially well acquainted with all details manufacturing bread wrappers. Permanent well-paying position. Strictly confidential. Address, Box 27-444, care Paper Trade Journal. A-18

GET THE JOB you want through National Service, 10 Murray Street, New York. tf.

WANTED—Superintendent for up-to-date paper board mill, making combination board. Give experience, age and references. Good position for right man. Address, Box 27-448, care Paper Trade Journal. A-18

HELP WANTED

HIGH-CLASS DRAFTSMAN, capable of taking full charge of mill engineering problems, wanted for pulp and paper mill in Virginia. Give references; state experience and salary expected. Address, Box 27-446, care Paper Trade Journal. A-18

BOSS MACHINE TENDER for a Canadian Kraft Mill making M. G. and M. F. papers. Address, Box 27-449, care Paper Trade Journal. A-25

WANTED—Experienced roofing dry felt mill superintendent for 72" single machine in Ohio. Must be able to produce. Give reference, age and experience. Address, Box 27-452, care Paper Trade Journal. tf.

SITUATIONS WANTED

BOOKKEEPER—Experienced voucher system. Capable making financial statement. Full charge, or act as assistant. Address, Box 27-453, care Paper Trade Journal. A-18

EXPERIENCED SALESMEN on coarse grades and specialties, well acquainted with buyers, desire direct mill selling connection. Best references. Address, Box 27-455, care Paper Trade Journal. A-18

SHIPPING CLERK—Experienced finishing room, and follow up orders. Address, Box 27-454, care Paper Trade Journal. A-18

BOSS FINISHER desires position in a progressive up-to-date mill. 15 years experience in very good mills on wrapping, book, bond, tissue and news. Single, duplex cutters, layboys, winders, ream cuteers; shipping clerk, mill office work. References. Address, Box 27-447, care Paper Trade Journal. A-25

COULD YOU use the services of a man knowing the paper industry and the raw materials and supplies used in it? Will consider bigger sales connection. Address, Box 27-445, care Paper Trade Journal. tf.

PAPER MILL SALES REPRESENTATIVE—Seeking representation for New York City and adjacent territory for mills making coated book, litho, supercalendered, machine finished, offset, high bulking book, sulphite bond, cover. Wide selling experience, knowledge of paper merchants specializing in the sale, and direct consumers of these papers, combined with an understanding of manufacturer's viewpoint and procedure. Address, Box 27-441, care Paper Trade Journal. A-18

PAPER MILL SUPERINTENDENT—Trained on M. F. and M. G. Kraft and Sulphite papers, over various grades. Best of references. Address, Box 27-393, care Paper Trade Journal. S-8

WANTED—Position as machine tender. Up on all kinds of box and test boards. Can give references. Address, Box 27-468, care Paper Trade Journal. A-25

SITUATIONS WANTED

SALESMAN—Position wanted on or before September 15, by married man thirty-three years of age. Have had four years experience as paper mill accountant and one year sales. Desire connection where ambition and results will be recognized. Best of references. Address, Box 27-469, care Paper Trade Journal. S-1

PULP AND PAPER MILL ENGINEER, with many years experience in design, construction and maintenance, desires position. References. Address, Box 27-470, care Paper Trade Journal. S-8

MECHANICAL ENGINEER—Graduated 1922 from University of Stockholm, Sweden, experienced in news print, sulphite and sulphate mills, seeks connection with pulp or paper mill in any capacity where technical training is of value and where the opportunity to advance is good. 6 months in sulphate mill in U. S. Capable draftsman. Address, Box 27-471, care Paper Trade Journal. A-25

WANTED—Situation as day foreman or boss machine tender. Familiar with both coarse and fine papers. Fourdrinier and Yankee machines. References. Address, Box 27-472, care Paper Trade Journal. S-8

FOREMAN-ADJUSTER paper bag machines; flat and square, self-opening and sack machines, also printing, wishes position. Long experience. Address, Box 27-473, care Paper Trade Journal. S-1

TOUR BOSS wishes position. Experienced on most all kinds of paper, also glassine and greaseproof. Address, Box 27-433, care Paper Trade Journal. A-25

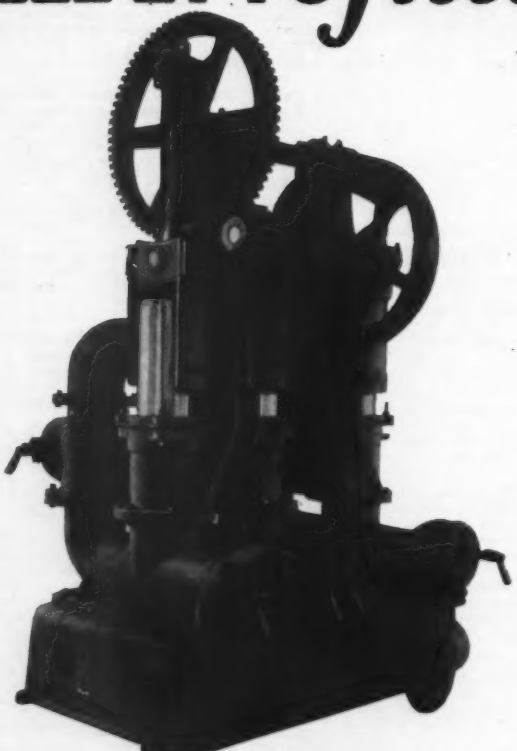
ASSISTANT SUPERINTENDENT—College graduate, chemist, nine years practical experience and research in rag fine writing papermaking and specialties, desires position with opportunity for advancement. Address, Box 27-320, care Paper Trade Journal. tf.

SUPERINTENDENT OR ASSISTANT—Energetic man, 33, married. Familiar with cylinder and Fourdrinier specialties, Kraft, bag, envelope, offset, manilas, bonds. Well up on colors. Technical training. Now employed, desires to change. References. Address, Box 27-429, care Paper Trade Journal. A-18

MANAGEMENT of small board mill or production manager of large concern, as I will soon be released from my present duties. I am a young man with good record, years experience and proven ability. If you are not satisfied with your production, quality, or the return on your investment, I can help you if given a chance. Address, Box 27-456, care Paper Trade Journal. A-18

CHEMICAL ENGINEER, Scandinavian, 9 years experience in operation of sulphite mills in Canada and Scandinavia, desires position as superintendent or similar position in Canadian mill. Address, Box 27-457, care Paper Trade Journal. S-1

An *Irrefutable* FACT!



Shartle's new Triplex stands the gaff as no other pump can.

"The higher the quality the more you get for the money."

The Mill Superintendent who installs an ordinary stuff pump probably gets about what he pays for—ten years service perhaps—each year, however, dotted with breakdowns and expense items.

The Mill Superintendent who installs a Shartle-Miami pump at a slightly higher cost is sure to get from twenty to twenty-five years service with an absolute minimum of down time and repairs.

We again remind superintendents that "the higher the quality the more they get for their money." We ask them to focus their minds on that irrefutable fact when in the market for stuff pumps or other mill equipment.

The Shartle Brothers Machine Company has more than one thousand pumps in use, and enjoys the enviable reputation of making the best pump known.

Shartle Brothers Machine Company
MIDDLETOWN, OHIO

SHARTLE BROTHERS
DIVISION OF THE BLACK-CLAWSON COMPANY

SITUATIONS WANTED

YOUNG MAN (22), with 3 years office and sales experience in paper, wishes to connect as salesman with established jobbing house in New York. Address, Box 27-478, care Paper Trade Journal. A-18

SUPERINTENDENT OR MANAGER, now employed, wishes position. Long experience on fine grades book, colored specialties. Best of references. Address, Box 27-479, care Paper Trade Journal. S-1

WANTED POSITION—Boss Beaterman or Beater Engineer. Family man, 37 years old. Experienced on most all grades. Good on colors. Address, Box 27-419, care Paper Trade Journal. A-18

POSITION WANTED—Superintendent or foreman; chip board or wrapper mill. Experienced at construction and remodeling. Eastern states preferred. Address, Box 27-382, care Paper Trade Journal. A-18

WANTED—Position as manager or superintendent of mill making binders, leather and other boards. Middle-aged man. Good at construction and repairs. Address, Box 27-381, care Paper Trade Journal. A-18

SALES POSITION WANTED—An experienced traveling salesman with following in paper bags to jobbers is open for position to represent a manufacturer or responsible agency in the states of Pennsylvania, New Jersey, Delaware, Maryland and West Virginia. Best of references furnished. Want a contract to cover the business produced, for protection, lasting a period of five years. Address, Box 27-474, care Paper Trade Journal. A-18

MISCELLANEOUS

CLARK MANUFACTURING COMPANY, Holyoke, Mass. Telephone 1828. Builders of cylinder moulds, couch and felt rolls, dandy rolls. We cover dandies and cylinders tight, for fast running machines. 3-5-27

WILL MAKE AN ATTRACTIVE PRICE to some responsible party who can take 1,872 tons per year of either of the following grades of paper: Tag or light chip board of building paper. Address, Box 27-442, care Paper Trade Journal. A-18

SEND YOUR ODD LOT LIST of coarse and fine papers together with samples to Goldman Paper & Paper Stock Co., 414 So. Front Street, Philadelphia, Pa. tf.

WANTED—Mill ends and job lots in rolls or flats in any quantity, all grades. Also boards. Joseph Goldstein & Sons, 1302-9 N. Halsted Street, Chicago, Illinois. tf.

WE ARE BUYERS OF AUTOMATIC MACHINES of highest perfection for making PAPER SPINNING CONES. S. A. 3046, Box 27-477, care Paper Trade Journal. A-18

WANTED—To invest $5,000.00 in constructing and operating a pulp or paper mill. Experienced in mill construction. Successful manager and mill man. Address, Box 27-480, care Paper Trade Journal. A-25

WANTED

WANTED—2 W. & P. Pulpers, 2 Filter Presses and 1 Rogers Wet Machine. Address, Box 27-285, care Paper Trade Journal. tf.

WANTED—Hamblet Sheeter, 52" with 6" roll stand. Mid-States Gummed Paper Co., 2433 So. Robey St., Chicago, Ill. A-18

WANTED—72"-75" Hamblet Cutter with or without Layboy and with back stands for eight rolls. Address, Box 27-476, care Paper Trade Journal. A-25

LIST YOUR WANTS HERE

FOR SALE

FOR SALE—Second-hand 1200 lb. wood tub N. & W. beater. In good condition. The Noble & Wood Machine Co., Hoosick Falls, N. Y tf

FOR SALE—6 Used Jones Imperial Jordans, with bronze or steel fillings. Will sell "as is" or factory rebuilt. THE NOBLE & WOOD MACHINE CO., Hoosick Falls, N. Y. tf.

FOR SALE—One 64" Holyoke Paper Trimmer. Good condition. Address, Box 27-443, care Paper Trade Journal. A-18

Classified Advertising costs little but brings large returns.

FOR SALE

1—72" Model 10 Cameron.

11—Dryers 48" x 110".

60" trim Black-Clawson Fourdrinier machine.

Several White cedar stuff chests, A-1 shape.

1—48"—3 cylinder machine.

1—70"—2 cylinder machine.

Several Chippers.

Four deck Beloit frames. These are modern and extra heavy.

One Ryther & Pringle Multiple Saw Slasher. Will cut 32'.

One Farrel Roll Grinder.

One No. 2 Lannoye Pulper.

One 61" Holyoke Super-Calender.

The Shartle Brothers Machine Company
Middletown, Ohio tf.

FOR SALE

HEADQUARTERS
For Good Used Machinery

ROTARY DRYERS AND KILNS
6—4' x 30' American Process.
2—6' x 60'.
1—8' x 100'.
1—9' x 125'.

PULPER MIXERS
1—W. & P. size 17-200 gals.
Also several smaller sizes.

TUBE AND ROD MILLS
1—3' 6" x 12' Allis Chalmers.
1—4' x 16' Schmidt.
5—5' x 22' Allis Chalmers.
7—5' 6" x 22' Schmidt.
1—4' x 22' Gates.

SULPHUR BURNERS
1—9' x 8' Glens Falls.
4—4' x 16' Glens Falls.
4—4' x 20' Glens Falls.

EVAPORATORS
1—Stokes Triple Effect, 1,000 sq. ft.
1—Scott Triple Effect, 1,350 sq. ft.
1—Swenson Triple Effect, 1,750 sq. ft.
2—Swenson Triple Effect, 2,200 sq. ft.

ROTARY FILTERS
2—8' x 4' Oliver.
2—8' x 6' Oliver.
2—6' x 6' Oliver, Acid Proof.
1—8' x 8' Oliver, Acid Proof.

SEND US YOUR INQUIRIES
WE BUY YOUR IDLE EQUIPMENT

CONSOLIDATED PRODUCTS COMPANY, INC.
15 PARK ROW NEW YORK, N. Y.
Barclay 0055

BAG MACHINE

For Sale

New Fuller-Saxton Single Purpose Bag Machine. Length of tube—32¼", with two color printer attached. Cost $4500.00. Make offer. Must make quick sale. Address, Box 27-475, care Paper Trade Journal. S-1

FOR SALE

2—Iron tub Beaters, practically new. Rolls 70 x 66. Made by Emerson Mfg. Co.

1—Wood tub Beater, practically new. Roll 70 x 66. Made by Emerson Mfg. Co.

2—Dilts Beaters, iron tubs. Rolls 54 x 62. A-1 shape.

1—Heavy duty Beloit 114" Paster.

4—Jones Washers. Iron tubs. Rolls 67 x 60. Good shape.

1—Dayton Beater and Hoist Iron tub Beater. A-1. Rolls 64" diameter, 54" face.

1—Breaker Roll 64" diameter by 54" face.

1—Downingtown Iron tub Beater with Brownell Buehler perforated back fall. Rebuilt for immediate shipment. Roll 44" x 44".

The Shartle Brothers Machine Co.
Middletown, Ohio tf.

FOR SALE

1—72" Hamblet Single Cutter with 24 roll back stand.
1—64" Beloit heavy duty duplex.
1—84" Black-Clawson heavy duty duplex, with duplex slitter.
1—52" Moore & White Cutter with Moore & White Layboy and Backstands.
1—48" Moore & White Cutter with Moore & White Layboy and Backstands.
1—42" Moore & White Cutter with Moore & White Layboy and Backstands.
1—60" Hamblet Cutter with 10 roll Backstands.
1—110" Moore & White Cutter with Moore & White Layboy and Backstands.
1—82" Heavy duty Hamblet Single Cutter with 24 roll Backstands.
2—58" Moore & White Single Cutters.
4—54" Moore & White Single Cutters.
6—48" Moore & White Single Cutters.
1—57" Hamblet Duplex Cutter, Heavy Duty.

The Shartle Brothers Machine Co.,
Middletown, Ohio tf.

FOR SALE

1—MODERN 10 YEARS OLD BELOIT FOURDRINIER MACHINE.

Wire 70′ x 164″ wide.
Breast roll 16″ diameter.
Table rolls 6″ diameter.
Suction Boxes 7.
Couch roll bottom 28″ diameter, top 26″ diameter.
1st Press Bottom roll rubber covered 26 x 163.
Top roll Gunmetal 28 x 169.
2nd Press—same as 1st.
3rd Press Bottom roll Rubber Covered 26 x 163.
Top roll Gunmetal covered 24 x 164.
Smoothing press Bottom roll Rubber covered 26 x 163.
Top roll Gunmetal covered 24 x 164.
Dryers, 32—60″ x 162″ arranged for double deck.
Calender—Farrel stack 10 rolls
28″ bottom.
20″ top and next to bottom.
7—13″ intermediates.
Reel—3 drum revolving 158″ face.
Winder—2 drum 158″ face, complete with base plates and driver

This is an A-1 modern Beloit machine, one of the best Beloit ever built.

ALSO

1—BAGLEY-SEWALL FOURDRINIER MACHINE.

Wire 92″ x 50′.
Breast roll 96 x 12.
Table Rolls 4—½″ diameter.
Couch rolls—Bottom roll 20″ diameter, top roll 18″ diameter.
1st Press—Bottom roll Rubber covered 91″ x 20.
Top, Wood, 93 x 20.
2nd Press—Bottom roll Rubber covered 90″ x 16″.
Top roll Granite, 91 x 16.
Dryers, 18—48 x 84 arranged double deck.
Calender Stack, 1—10-roll, Bottom roll 18,
Next to bottom and top 14,
1—12″ and 3—8″.
Reel—Two spool.
Winder—Warren.

Complete with drives and base plate. In good operating condition.

The Shartle Brothers Machine Company
Middletown, Ohio.

FOR SALE

One Rice, Barton & Fales 146″ trim Fourdrinier Paper Machine, capable of speed 650′ per minute, all complete with thirty-two 48″ diameter dryers, 9 roll calender stack, reel, winder, etc. In A-1 condition at very reasonable price. Shipment about 3 months.

Apply:—

Gibbs-Brower Company, Inc.

Paper and Pulp Mill Brokers

261 Broadway, New York City—Telephone Barclay 8020
166 W. Jackson St., Chicago, Ill.—Telephone Harrison 0151

OUR MOTTO—"Service First"

Many Times a Small Classified Advertisement Placed in These Columns Brings Very Satisfactory Results

PAPER MACHINES
For Sale

In good condition. Immediate delivery.

One 2 cylinder machine. 2 presses; 10 dryers 42″ x 84″; one calender; reel; single drum winder; Marshall drive.

One Fourdrinier machine. Wire 96″ x 50′. 2 presses; 15 dryers 48″ x 94″; one calender; reel; two drum winder; Marshall drive.

By: FRANK H. DAVIS COMPANY
175 Richdale Avenue Cambridge, Mass.

FOR SALE
BOARD MILL EQUIPMENT

3—800 lb. Downingtown Beaters.
2—70″ Downingtown Wet Machines.
1—48″ Stack Board Calenders.
1—36″ Stack Board Calenders.
1—120 Ton Screw Press.
1—65″ Ream Cutter.
250 H.P. and 150 H.P. Engines.

Address, Box 27-270, care Paper Trade Journal.

FOR SALE

2—Swenson Vacuum Evaporators, Triple Effect, 3,300 sq. ft.

4—Carlson Disc Evaporators.

3—Carlson Rotary Incinerators.

Excellent Condition. Immediate Shipment.

J. C. PICKENS
Nitro, W. Va. S-1

CLEARANCE

SACRIFICE PRICES

For Storage

Wilmington, Vt. and St. Louis, Mo.

1—Triple effect Yaryan Horiz. type Evaporator, with pumps, piping, etc. Capacity 1200 gals. liquid per hour with a concentration of 50%.
1—450 sq. ft. new Yaryan Heater.
2—9' dia., 30' long Manitowoc Incinerators with drives.
1—84" Union Iron Wks. Chipper, 30—20¾" knives.
4—150 H. P. Dillon Boilers, 150 lb. pressure.
1—750 G. P. M. Fairbanks Morse Fire Pump.
Several Centrifugal Pumps, 2" up to 12".
3 phase, 60 cycle, 550 volt Motors, 10 to 100 H. P.
4—50 K. V. A. G. E. Transformers, 2200 volt—575 V.

TECHNICAL ECONOMIST CORPORATION

40 RECTOR STREET

NEW YORK, N. Y.

SITUATIONS WANTED

OPPORTUNITY—To secure fine paper mill superintendent. Technical man accustomed to manufacture of high grade loft and air dried bonds and ledgers to folding and other specifications. Good reference. For further information apply to Box 27-485, care Paper Trade Journal. A-25

BEATERMAN-PAPERMAKER, experienced in all grades, from No. 1 ledgers, linens, onionskins, also fast books, envelope, lithograph, mimeograph, Kraft, tissues. Can finish stuff off the plate or Jordan to suit weights and test. Experienced with colors; steady and reliable. Come immediately. Address, Box 27-484, care Paper Trade Journal. A-25

WANTED

WANTED—Second hand Slitter approximately eighty inches wide. Address, Box 27-482, care Paper Trade Journal. tf.

MISCELLANEOUS

WANTED—Side or odd lot rolls ten to ninety pound basis. The larger the quantity the better we like it. Address, Box 27-481, care Paper Trade Journal. tf.

FOR SALE

FOR SALE—Pie Plate Machines—plain and fluted plates. Address, Box 27-483, care Paper Trade Journal.

Classified Advertising Usually Brings Results

TANKS

Blow Pits, Acid Storage Tanks, Vats, Etc.

Send us your specifications for prompt shipment

Kalamazoo Tank & Silo Co., Kalamazoo, Michigan

HAYTON PUMP and BLOWER CO.

APPLETON, WIS.

Centrifugal and Triplex Pumps

For All Purposes

Designing Pumps to Fit All Conditions Our Specialty

Perforated Metal Screens

for every purpose

Elevator Buckets (plain or perforated) Stacks and Tanks

"Miteo" Interlocked Steel Grating—Light and Heavy Steel plate Construction

HENDRICK MFG. CO., Carbondale, Pa.

New York Office 30 Church St. | Pittsburgh Office: 904 Union Trust Bldg. | Hazleton, Pa., Office: 738 W. Diamond Ave.

ERIE CITY 3-drum BOILER

ERIE CITY IRON WORKS

Erie, Penna.

Dayton High Speed Beaters

—Advantages—

Heavier Furnishes
Faster Beating
Greater Output
More Uniform Product
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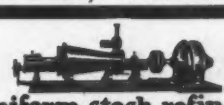

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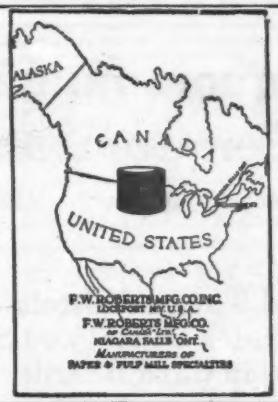

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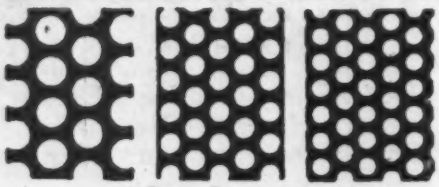

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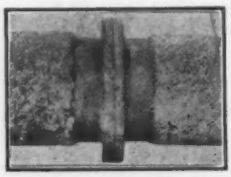

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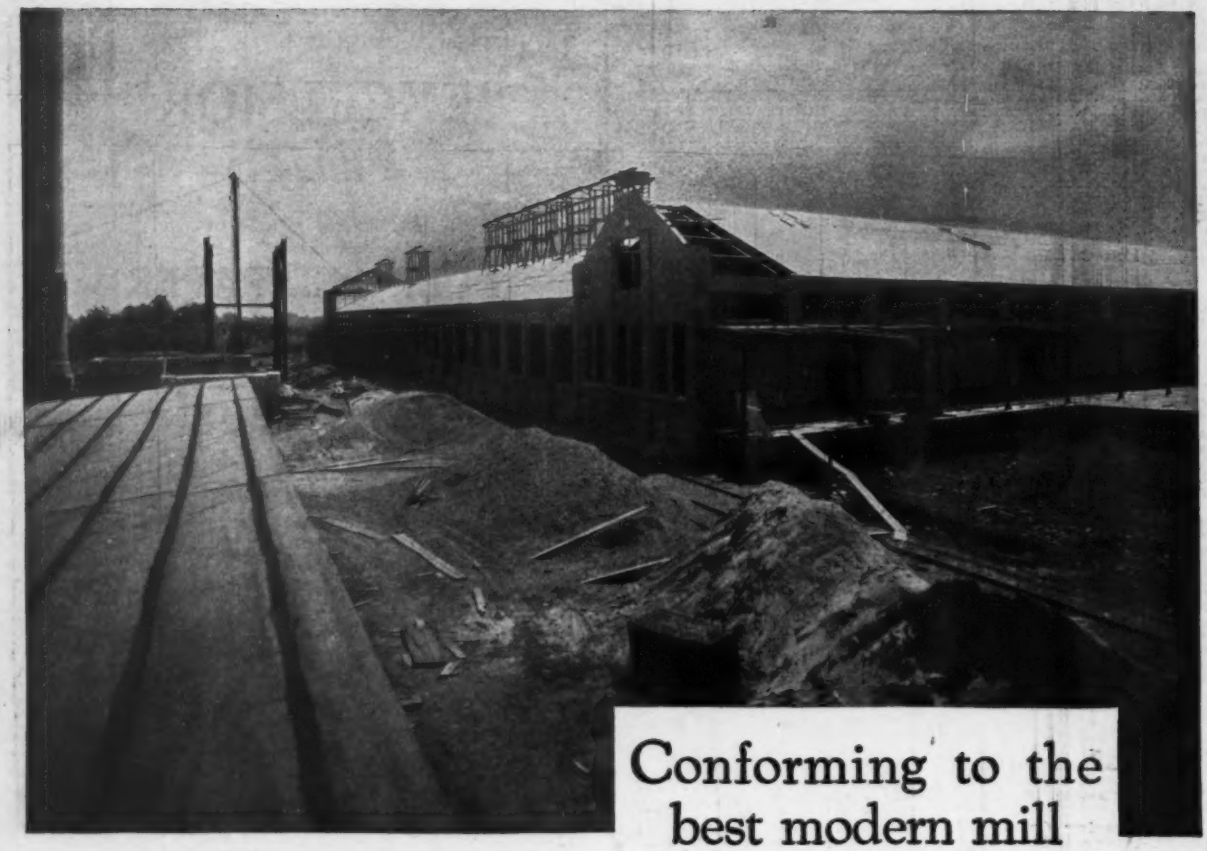

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